Report of the

Paediatric Death Review Committee

and

Deaths Under Five Committee

Office of the Chief Coroner
Province of Ontario

June 2008

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Message from the Chair

It is my pleasure to provide to you the Annual Report of the Paediatric Death Review Committee (PDRC) and the Deaths Under Five Committee (DU5C) of the Office of the Chief Coroner (OCC) for Ontario.

The past year has been remarkable for our Committees in that opportunities for self-reflection and improvement in our core functions have presented themselves, and a significant change in membership has taken place with the retirement of long-serving members and the addition of new members.

In January of this year, Dr. James Cairns retired from the Office of the Chief Coroner leaving his position as the long-standing Chair of the Committees. This year, he has been named the recipient of the Ontario Association of Children's Aid Societies Outstanding Leadership in Child Welfare Award. This distinguished honour exemplifies his lifetime dedication to enhancing public safety in the interests of our most vulnerable citizens.

Other members who have retired following years of service to the Committees include Dr. Ted Cormode, a paediatrician from Orillia, who continues to do locums in the remote North, and Dr. Robin Williams, a paediatrician and Medical Officer of Health in Niagara. Dr. Glenn Taylor, Head, Division of Pathology at the Hospital for Sick Children has retired from the DU5C, but continues to provide his expert assistance to the PDRC. The OCC is very grateful for the years of dedicated service provided by these physicians. In addition, Ms. Dorothy Zwolakowski left her role as Executive Officer, Investigations and is currently the Executive Officer to the Chief Coroner. Ms. Zwolakowski during her tenure was characterized as the "heart and soul" of the Committees.

New members to the PDRC include Dr. Ivor Margolis, Chief of Paediatrics at William Osler Health Centre; Dr. Alan Hudak, a paediatrician from Orillia; Ms. Donna Zan, Child Welfare Consultant, and Ms. Doris Hildebrandt, Executive Officer and former Administrative Coordinator for Toronto West.

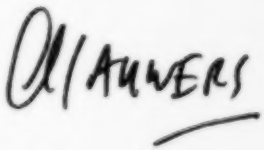
This year, the PDRC undertook a revision of its Terms of Reference, Membership Agreement and Confidentiality Agreement. These documents are provided in this edition in the interests of transparency and educating the public of our functions. Emerging from this process was a revision of our mandate, whose most rudimentary function is to provide advice to the Chief Coroner regarding the cause and manner of death in paediatric fatalities. In addition, the medical and child welfare death reviews may provide opportunities for recommendations directed toward the avoidance of death in similar circumstances in the future. Of paramount importance, is that the public understand that our Committees, while identifying causes of death and systemic issues which may have been contributory to deaths, are prohibited from taking on advocacy positions, developing guidelines, or implementing programs for the prevention of death. When informed by the Chief Coroner of identified trends, these tasks should be properly undertaken by non-governmental agencies, ministries of government, representative organizations or advocacy groups.

On April 19, 2007, the Chief Coroner for Ontario, Dr. Barry McLellan announced the results of a review of certain cases of suspicious child deaths where Dr. Charles Smith performed the autopsy or was consulted ("the Chief Coroner's Review") and found that some of the factual conclusions were not reasonably supported by the materials available. As a result, the Lieutenant Governor ordered that pursuant to the Public Inquiries Act, a Commission was issued effective April 25, 2007, appointing the Honourable Stephen Goudge as Commissioner. The Inquiry's mandate was to conduct a systemic review and an assessment of the policies, procedures, practices, accountability and oversight mechanisms, quality control measures and institutional arrangements of paediatric forensic pathology in Ontario from 1981 to 2001 as they related to its practice and use in investigations and criminal proceedings. The Commissioner is to make recommendations to address systemic failings and restore and enhance public confidence in paediatric forensic pathology in Ontario. The Commissioner will deliver his final report and recommendations to the Attorney General on September 30, 2008.

Message from the Chair

In an effort to ensure transparency and inform the public of the work of the Committees, this edition will describe examples of both the medical and child welfare reviews of the deaths. The format provided is a synoptic description of cases, followed by a description of themes, which arise from the review, and recommendations, if any were proffered. Identifiers have been removed for purposes of confidentiality.

Lastly, I would like to publicly thank all the members of both the Paediatric Death Review Committee and the Deaths Under Five Committee for their dedication, commitment and expertise. Ms. Doris Hildebrandt and Ms. Karen Bridgman-Acker are the foundations upon which the Committees function and I am eternally indebted to them for their patience, industry, guidance, vigilance, dedication to excellence, and humour. They are the principal authors of this document.



Dr. A. E. Lauwers
Associate Deputy Chief Coroner, Province of Ontario
Supervising Regional Coroner, Toronto West
Chair, Deaths Under Five Committee
Chair, Paediatric Death Review Committee

Paediatric Death Review Committee: Terms of Reference

Purpose:

The purpose of this committee is to assist the Office of the Chief Coroner in the investigation and review of deaths of children and to make recommendations to help prevent such deaths in similar circumstances.

Objectives:

Legislation

1. To provide and coordinate a confidential multi-disciplinary review of paediatric deaths pursuant to Section 15 (4) of the Coroners Act, R.S.O. 1990, Chapter c. 37, as amended.

2. To review all deaths of children who died while receiving service from a Children's Aid Society pursuant to the Joint Directive 2006.

3. To offer expert opinion to the Chief Coroner and referring Regional Supervising Coroners regarding the circumstances of the death in the individual cases reviewed.

4. To determine the cause and manner of death.

5. To ensure, in medical cases, that the appropriate diagnosis was rendered.

6. To provide expert evidence, where requested, at inquests.

Education

7. In the interest of enhancing public safety, the Committee will support research, prevention and effective intervention strategies into paediatric fatalities through the collection and dissemination of data and information through its annual report.

8. To provide or stimulate educational activities through identification of problem issues, and/or:
   - Referral to appropriate agencies for action
   - Development of protocols
   - Disseminate educational information to parents, hospitals/professionals, child welfare agencies, government ministries and others

Research

9. To do or promote research, where appropriate.

10. When directed, to undertake random reviews or directed reviews.

Recommendations

11. To report annually to the Chief Coroner on the trends, risk factors, and patterns identified and draft appropriate recommendations for preventing deaths in similar circumstances.

Paediatric Death Review Committee: Terms of Reference

12. If the Committee believes that there is a grave and imminent risk to public safety posed by waiting for the publication of the annual report, its concerns will be conveyed to the Chief Coroner through the Chair. Any decision to make a public safety notification is at the sole discretion of the Chief Coroner.

13. To help identify the presence or absence of systemic issues, problems, gaps, or shortcomings of each case to facilitate appropriate recommendations for prevention of paediatric deaths.

14. To help identify trends, risk factors, and patterns from the cases reviewed to make recommendations toward the development of effective intervention and prevention strategies.

Tracking

15. To create and maintain, from the cases reviewed, a database tracking the paediatric fatalities and their circumstances.

Note: All of the above described objectives and attendant committee activities are subject to the limitations imposed by the Coroners Act of Ontario Section 18(2) and the Freedom of Information and Protection of Privacy Act.

Size and Structure:

1. A full-time member of the Office of the Chief Coroner shall hold the position of Chair.

2. In addition to a Deputy Chief Coroner or a Regional Supervising Coroner, the Chair of the Committee should give consideration to having members from the health care sector, criminal justice systems, child welfare experts and other coroners.

3. The appointment and tenure of Committee membership is at the sole discretion of the Chief Coroner, pursuant to Section 15(4) of the Coroners Act. On a regular basis, the Chief Coroner shall review the composition and balance of the Committee membership.

4. Committee members should anticipate membership lasting three years, subject to a review by the Chair. Continued membership after that time may be contingent on the Chair's evaluation of the members' past commitment and participation, and the current composition of the Committee.

5. Other individuals with specific expertise and/or case knowledge may be invited to Committee meetings on a case-by-case basis as the need arises at the discretion of the Chair, and with advice from members of the Committee. Every invited person must execute a confidentiality agreement.

6. The Chair may strike sub-committees from time to time, as he/she deems appropriate.

Limitation and Confidentiality Requirements:

1. Each member of the Committee shall enter into and be bound by the terms of the Membership and Confidentiality Agreements set out in Schedule I and II of the Terms of Reference.

2. The Committee is strictly advisory to the Chief Coroner and any recommendations regarding individual fatalities or reports including the annual report will be made through the Chair to the Chief Coroner.

Paediatric Death Review Committee: Terms of Reference

3. These reviews are generally limited to examining information that already exists in the record. The information provided will usually consist of the Coroner's Investigation Statement, the Post Mortem Examination Report, the police file, hospital and medical records and social services agency reports where available. Any further collection of relevant existing documentation and requests for clarification from involved parties during the review process can be sought with the consent of, and at the discretion of the Chair. The Committee members shall not engage in investigative activities, including personal interviews of investigators, witnesses or other involved parties. The collection of information for the Committee is limited by the normal authority of the coroner pursuant to Section 16 (Investigative Powers) of the Coroners Act. Information must only be collected within the bounds of this section and with the requisite approval of a coroner.

4. Any opinion or recommendation rendered by the Committee is limited by the information available to it and is subject to the limitations imposed on coroner's investigations and inquests by the Coroners Act. Members shall not render individual opinions or provide public comments on cases reviewed and shall not provide individual opinions or comments in the context of civil or criminal litigation or enquiries outside of the Coroner's system, nor will the Committee render any conclusion in law or make any finding of legal responsibility.

5. Members of the Committee shall declare any interest they may have with any individuals or organizations involved in the circumstances of the death under review, including any interest or financial involvement with any agencies to which recommendations are directed. It will be the function of the Chair to assess whether there is a conflict or appearance of conflict of interest sufficient to preclude a member's participation in the fatality review.

Expert Opinion

1. Expert opinion presented to the Committee should be, and seen to be, the independent product of the expert reviewer, uninfluenced as to the form or content by any external exigencies.

2. Expert opinion should provide independent assistance to the Committee by way of objective, unbiased opinion in relation to matters within the expert's expertise. Expert opinion should never assume the role of an advocate.

3. Expert opinion should state the facts or assumptions on which their opinion was based. They should not omit to consider material facts that might detract from their concluded opinions.

4. Experts should make it clear when a particular question or issue fell outside of their expertise.

5. If an expert's opinion was not properly researched because it was considered that insufficient data was available, then that should be stated with an indication that the opinion was no more than a provisional one.

6. Wherever possible, expert opinion should be evidence-based.

7. Upon receipt of the expert's review, the PDRC will produce a consensus position with regard to the issues canvassed during the review.

Paediatric Death Review Committee: Terms of Reference

Function of the Chair:

1. Convene meetings on a monthly basis to review paediatric deaths.
2. Review all cases referred to the Committee by the Regional Supervising Coroners and to assign cases to specific Committee members for review.
3. Prepare the agenda for each meeting of the Committee.
4. Minutes from prior meetings shall be kept, circulated and approved by the Committee for each meeting.
5. Provide in writing to the referring Regional Supervising Coroner the results and recommendations arising out of the case reviews.
6. Prepare an annual report based on the aggregate data collected from all paediatric deaths identifying trends, issues, and recommendations directed to the prevention of paediatric deaths.
7. The Chair of the Committee shall make the report to the Chief Coroner. The contents of the report shall be subject to the limitations imposed by the Coroners Act and the Freedom of Information and Protection of Privacy Act.
8. Perform such other duties as may be required in the review of paediatric death fatalities as requested by the Chief Coroner.

Referrals to the Committee

1. Regional Supervising Coroners shall notify the Chair of the Committee of all relevant paediatric deaths.
2. Upon completion of the initial investigation, the respective Regional Supervising Coroner shall refer cases, in writing, to the Paediatric Death Review Committee.
3. Upon receipt of a case referred to the Committee, the Chair shall ask the Executive Officer to coordinate and examine the documentation in relation to the case. The Chair will subsequently disseminate the case for review or make the decision not to proceed with a full case review.
4. The Committee shall neither consider nor respond to requests from private individuals, agencies or advocacy groups, save for the Chair or his designate to acknowledge receipt of correspondence and to notify the requestor of its redirection. All such inquiries shall be forwarded to the respective Regional Supervising Coroner who retains carriage of the coroner's investigation.

Amendments to the Terms of Reference:

1. The Chief Coroner may, under his/her authority, amend the Terms of Reference of the Committee.
2. Committee members may request and/or recommend changes to the Terms of Reference through the Chair of the Committee to the Chief Coroner.

Paediatric Death Review Committee: Confidentiality Agreement Schedule I

Pursuant to the Coroners Act, R.S.O. 1990, c.37 &the Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c.31

Appointment as an expert advisor to the Chief Coroner is made pursuant to the authority of s.15(4) of the *Coroners Act*. The *Coroners Act* generally provides that advice or reports generated under request or warrant of a Coroner be provided only to those authorities specified by the Act. Furthermore, the Coroner's system is subject to the *Freedom of Information and Protection of Privacy Act*, which governs the gathering, retention and release of personal information.

I, _____, acknowledge and agree to the following limitations and confidentiality provisions as conditions of Committee membership.

1. Any and all information disclosed, discussed or otherwise obtained as a result of involvement with the Committee is to remain confidential and not to be disclosed to any person not a member of the Committee without the consent of the Committee Chair or Chief Coroner or their designates.

2. The Committee is strictly advisory and reports directly to the Chief Coroner. Therefore, any recommendations regarding individual fatalities arising from reviewed cases, or recommendations arising from annual reports generated by the Committee from the aggregate data collected as a result of such case reviews, shall be made through the Committee Chair to the Chief Coroner.

3. Any opinion or recommendation rendered by the Committee is subject to the limitations imposed on Coroner's investigations and inquests by the *Coroners Act*. Specifically, any opinion or recommendation expressed by the Committee shall not render any conclusion in law or make any finding of legal responsibility.

4. Members of the Committee shall not become directly or indirectly involved in rendering individual opinions outside of the Committee or in providing public commentary on reviewed cases. For greater certainty, Members of the Committee shall not assist in any way with inquiries outside the Committee context with respect to reviewed cases. Specifically, Members shall not render individual opinions or provide public commentary in the context of civil or criminal litigation related to reviewed cases.

5. Members of the Committee shall, as soon as is reasonably practicable, declare any interest and/or personal involvement they may have or have had with respect to any party, individual or organization involved in the circumstances of any matter under review by the Committee. In general, a conflict will require the member to recuse him or herself for the discussion of the case.

6. Documents or other materials provided to Committee members pertaining to the matters under review by the Committee shall be handled in a manner so as to preserve the confidentiality of the information contained therein.

7. Documents or other materials provided to Committee Members remain at all times the property of the Office of the Chief Coroner and are not to be copied without the permission of the Committee Chair, the Chief Coroner or their designates. All such documents and/or other materials shall be returned to the Office of the Chief Coroner upon request of the Committee Chair, the Chief Coroner or their designates, or upon the resignation of the Committee Member.

Paediatric Death Review Committee: Confidentiality Agreement Schedule I

8. Additional membership limitations or confidentiality provisions may be stipulated from time to time and included in Schedule II of this agreement by the Chief Coroner. Schedule II shall constitute conditions of membership in addition to the foregoing.

_____ _____

(Signature) (Date)

Paediatric Death Review Committee: Membership Agreement Schedule II

The following document is intended as a companion to the Paediatric Death Review Committee Terms of Reference. It may be modified from time to time as required by circumstance.

Committee Membership and Selection

1. Membership composition and balance will be reviewed by the Chair and Chief Coroner on a regular basis, with consideration given to replacing long-standing members to allow for the infusion of fresh perspectives in the review process. Members' past commitment and contributions to the Committee will be considered when making determinations on continued Committee membership.

2. Invitations to join the PDRC will be extended to individuals at the sole discretion of the Chair, in consultation with the Chief Coroner. Suggestions regarding suitable candidates will be sought from Committee members.

3. New members will be selected in keeping with guidelines contained within the Terms of Reference.

4. Members are reminded that the Committee is responsible for providing assistance to the Office of the Chief Coroner in determining the circumstances of a death. The Committee is not to be used as a vehicle for the furtherance of personal or professional agendas related to paediatric death prevention.

Meetings and Attendance

1. There will be 10 meetings scheduled per year between September and June.

2. Meetings will take place on the same Tuesday of every month. They will commence at 4:00 p.m. and conclude when all items on the agenda have been addressed, except when circumstances warrant an amendment to the schedule.

3. Members are expected to attend at least 7 meetings (70%) between September and June. The Chair will consider exceptional circumstances.

4. Members are expected to be present throughout the meetings.

5. Members wishing to add items to the agenda are required to notify the Executive Officer two weeks in advance of the meeting to allow for the additional item to be considered.

6. Members are to notify the Executive Officer of their anticipated attendance one-week prior in order to facilitate the preparation of meeting packages, hotel rooms and the ordering of food.

Workload

1. The Chair expects to review 20 medical and 30 child welfare cases per year, in keeping with anticipated case referrals.

2. Committee members will generally be asked to review a minimum of two cases per year.

Paediatric Death Review Committee: Membership Agreement Schedule II

3. Each Committee member assigned to a review will draft a report outlining the case in a succinct and logical manner, consistent with a standard template for reports.

4. Each Committee member will present their case orally at a Committee meeting, imparting sufficient information to Committee members to facilitate discussion, and assist in drafting meaningful recommendations to the Chief Coroner.

Document Security

Documents surrendered by police services, social service agencies, educational institutes, medical practitioners and health care facilities contain confidential information not normally provided to the general population. It is incumbent on Committee members to ensure the privacy of the information coming into their possession. There are obvious limits on the ability to secure files, but every effort should be taken to ensure they are not lost or exposed to public scrutiny during the review process. Agencies surrendering documentation do so with the belief that the information contained within these files is appropriately guarded from unnecessary and unlawful exposure. Maintaining the security of these files is tantamount to maintaining the credibility of the Committee itself.

1. The Executive Officer is responsible to ensure that files are provided to the reviewer in a secure manner.

2. Reviewers are responsible to secure the file from unlawful scrutiny while in their possession.

3. Reviewers shall notify the Chair or Executive Officer immediately upon becoming aware of a breach of file security, including the loss of documents or the exposure of confidential information to persons not associated with the Committee.

4. Electronic files may be provided. All efforts will be made to password protect documents. Reviewers should make all attempts to review the files directly from the media in which they receive them. If it is necessary to place PDRC files on a laptop or stand alone computer, password protection should be maintained and files should be kept in a dedicated folder that is deleted upon the conclusion of the review.

Review Process

The PDRC review process is a "paper review" of the existing record of a paediatric death event. Its purpose is to identify factors that contributed to a death and make recommendations to help prevent similar deaths in the future. This process represents a complement to the Office of the Chief Coroner's normal investigative and inquest process. It does not replace an inquest. In certain cases a finding of "No recommendations" is a completely appropriate resolution to a review and should not be viewed as failure.

1. The Executive Officer will obtain the investigative records of CAS and medical records of referred paediatric deaths.

2. Investigative files will be vetted by the Executive Officer. Extraneous materials not required for the review process will be removed at his/her discretion. Examples of these materials include crime scene registries, crime scene photographs, documents exposing confidential police investigative techniques, duplicate records, exhibit lists and administrative documents.

Paediatric Death Review Committee: Membership Agreement Schedule II

3. During the vetting process the Executive Officer may notice deficiencies in the file related to missing records or records that may be necessary for the review. If such records are identified, attempts will be made by the Executive Officer to collect that information for the reviewer at the earliest opportunity.

4. The Executive Officer does not conduct a comprehensive review of the file. The reviewer may identify the need for supplemental records.

5. The Chair will make every effort to provide the file to the reviewer in hard copy or electronic format approximately 30-60 days in advance of the expected meeting date. This lead-time should allow for a sufficient review of the file. Some less complicated files will be provided within shorter time frames in consultation with the Reviewer.

6. Within 30 days of receiving the file, if deficiencies are identified relating to the absence of records that are known to exist, the Reviewer is to contact the Executive Officer and ask for those records to be obtained. The Executive Officer and Chair will make a determination on the need to obtain further documents and issue Warrants for Seizure. The Chair shall consider the age of the record and the anticipated "value added" to the review when making his/her determination.

7. The Reviewer will conduct a review of the file based on the examination of the documents in their possession. The authority to enter an investigation and collect information to support a death investigation is the coroner's. Reasonable attempts will be made to acquire records that are known to exist.

8. Reviewers shall provide a draft copy of their written report in advance of the meeting to allow for review by Committee members. Reports shall be limited to approximately 5 pages of narrative synopsis of the case and should be confined to the relevant events that form the development of recommendations. Reviewers shall provide draft recommendations for discussion at the meeting.

9. Members may take advantage of expert assistance by other members of the Committee when reviewing files with particularly complicated issues in one discipline (i.e. CAS, medical records etc.) That assistance should be incorporated into the reviewer's final report and oral presentation to the Committee.

10. Reviewers shall provide a comprehensive oral presentation on their case at a Committee meeting. They are not limited by the contents of their written report and the Chair expects that significant amounts of detail will be imparted to the Committee in an oral presentation that may not necessarily be present in the final report. If, during the course of case discussions, issues are raised that go toward meaningful recommendations, that information will be incorporated into the report.

11. If possible, members shall make themselves familiar with the content of the draft report in advance of the Committee meeting. The reviewer should have sufficient knowledge of the file to respond to inquiries by other members.

12. At the conclusion of the case review all materials provided to the reviewer shall be returned to the Executive Officer. In addition, all copies of draft reports and all documents and notes in the possession of Committee members received or made during the course of the review, shall be destroyed or returned to the Executive Officer for destruction.

13. Reviewers shall make the appropriate changes to their report concerning issues arising from the case review. The revised report shall be submitted to the Chair through the Executive Officer following the meeting. The Chair may make revisions to ensure that the report is consistent with the objects and restrictions of the Coroners Act.

Paediatric Death Review Committee: Membership Agreement Schedule II

14. Recommendations in the final report may be used in the Annual Report verbatim.

15. Final reports will be reviewed and possibly revised by the Chair of the Committee and subsequently forwarded to the appropriate Regional Supervising Coroner for his/her review within one month of receipt of the final report from the Reviewer.

16. From time to time, case reviews will be deferred to accommodate the collection of new information or examination of issues arising from the review process.

Public Presentations

1. Committee members are reminded that they do not represent the Office of the Chief Coroner and shall not make public presentations focusing on the structure and review process of the Paediatric Death Review Committee without the permission of the Chair.

2. Members receiving a request for such a presentation should notify the Chair with sufficient notice to allow him/her to consider the request.

3. If appropriate, the Chair will authorize Members to make presentations on behalf of the Coroner's office. Members will be supplied with a prepared presentation in PowerPoint format that has been approved by the Office of the Chief Coroner. Payment to members or costs associated with making a presentation on behalf of the Chief Coroner's office should be brought to the attention of the Chair.

4. The Annual Report of the PDRC is regarded as a public document and Members are free to make presentations about its content, themes and recommendations. Members should identify their organization or affiliation and shall not represent themselves as speaking on behalf of the Office of the Chief Coroner when making presentations about the Report. Members are asked to structure their presentations so as to not impart any factual information about confidential review details that are not already contained within the report.

5. These guidelines are not meant to preclude the normal practice of Committee members making presentations about paediatric death prevention as part of their private or professional lives.

Classification of Death

1. Natural:
A death is natural if it is due to a natural disease or known complication thereof; or known complication of treatment for the disease.

2. Accident:
A death is accidental if it is due to an occurrence, incident or event that happens without foresight or expectation.

An accidental death is caused by an external factor, where death or harm was not foreseen or expected.

3. Suicide:
A death is a suicide if it results from an intentional act of a person knowing the probable consequence of what he/she is about to do—that is his/her own death.

The Ontario Court of Appeal in the case *Beckon v. Young* has given specific instructions regarding the standard of proof required for a finding of suicide (Beckon test). While the legal test to be satisfied is a balance of probability, a determination of suicide can only be made where there is clear and convincing evidence. There is to be a presumption against suicide at the outset, and one must be satisfied on a high degree of probability that the death was a suicide.

Suicide is a finding of fact, not of law or morality. A finding of suicide does not imply agreement with, or understanding of the decision of the deceased. It means that the act was initiated by the deceased and it was non-accidental.

4. Homicide:
A death is a homicide if it resulted from the "action of a human being killing another human being" (Oxford dictionary definition).

The action must be non-accidental and originate from a person other than the deceased. A finding of homicide in the coroners' system is a finding of fact and does not carry with it a determination of guilt. It is however, a serious finding and should be made only on clear and convincing evidence of a non-accidental action of a person that led to the death of another person.

5. Undetermined:
A death is classified as undetermined if: a full investigation has shown no evidence for any specific classification; or there is equal evidence or a significant contest among two or more classifications; or the death is a suicide that does not meet the Beckon test requiring a high degree of probability; or the death is an apparent suicide of a child under the age of 10.

A finding of "undetermined" is a positive and appropriate finding, after a full investigation and careful consideration of all the evidence. It should not be considered a failure to reach a conclusion.

In the Province of Ontario, death classification falls into one of five categories

Paediatric Death Review Committee: Medical and CAS Case Reviews 2005 – 2007

The Paediatric Death Review Committee and the Deaths Under Five Committee review a large number of cases annually. The intake, preparation and review of these cases are labour intensive.

In 2005, the PDRC reviewed a total of 49 cases. 28 of those cases had Children's Aid Society involvement with the child prior to their death. The 3 cases recommended for inquest were of a medical nature and had no Children's Aid Society involvement.

In 2006, the PDRC reviewed 86 cases, with 63 having involvement with a Children's Aid Society. One case was referred for inquest.

For the year 2007, 91 cases were reviewed (18 Medical and 73 CAS). Further explanation and analysis of these cases are included later in this report.

There has been a clear increase in the number of CAS cases the PDRC has reviewed since the revised Joint Directive between the Office of the Chief Coroner and the Ministry of Children and Youth Services, effective March 31, 2006 allowing for a more timely and streamlined approach to reviewing CAS files. This agreement is discussed on pages 49-51 of this report.

	2005		2006		2007	
Manner of Death	Medical	CAS	Medical	CAS	Medical	CAS
Natural	18	10	16	18	17	10
Accident	1	6	1	13	0	23
Homicide	0	0	3	7	0	10
Suicide	0	5	0	9	1	8
Undetermined	2	7	3	9	0	15
Ongoing Investigation				*7*		*7*
Total Case Reviews:	**21**	**28**	**23**	**63**	**18**	**73**

Children's Deaths in Ontario (0 to 18 years of age): 2002 to 2006

The following table summarizes the children's deaths investigated by the Office of the Chief Coroner on an annual basis. The statistics for 2004, 2005 and 2006 remain preliminary at the time of printing. While it appears that the number of deaths has decreased significantly, this is likely due to a number of incomplete investigations for those years. The deaths reviewed by the PDRC represent a fraction of the total number of children who died in Ontario. Those deaths will be discussed in further detail throughout the report.

The following percentages represent the total deaths by manner over this five-year period. Clearly, the largest numbers fall into the *natural* and *accidental* categories.

Natural: **39 %**
Accident: **36 %**
Suicide: **10 %**
Homicide: **5 %**
Undetermined: **10 %**

MANNER	2002	2003	2004*	2005*	2006*
Natural	241	218	225	200	173
Accident	221	198	170	190	170
Suicide	61	56	53	54	37
Homicide	32	30	19	23	29
Undetermined	45	47	47	65	52
Total Deaths:	**600**	**549**	**514**	**532**	**461**

Child Death Review Process in the Province of Ontario

Overview:
There are approximately 320 coroners in the Province of Ontario. The province is divided into 4 regions with 9 Regional Supervising Coroners overseeing the investigations in each region.

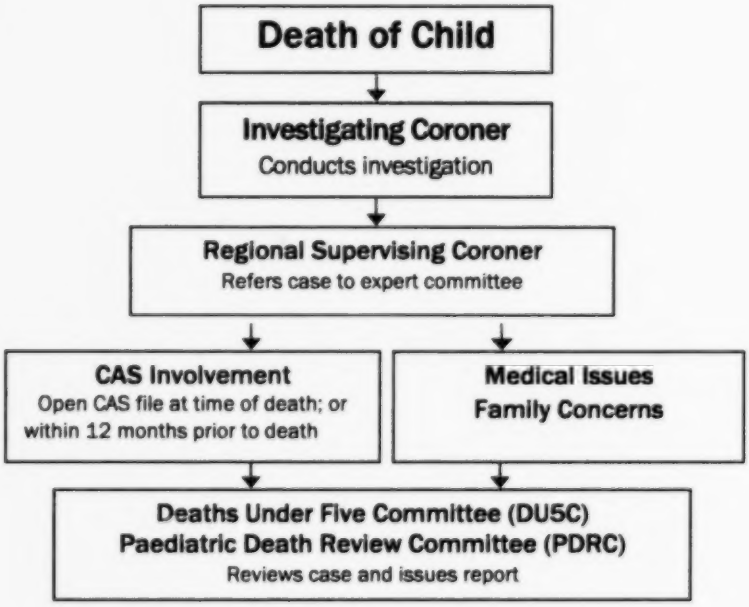
The Paediatric Death Review Committee (PDRC) reviews medically complex deaths where the cause and/or manner of death may be in question, or where there are concerns regarding the medical care. The Committee may also review selected cases where concerns are raised by family members or caregivers.

The Deaths Under Five Committee (DU5C) reviews all deaths of children under five years of age in Ontario, assists in the classification of cause and manner of death, and may forward the case for further review to the PDRC as required.

The Regional Supervising Coroner, having decided that the case requires a review, will refer the case to the PDRC. Items reviewed by the PDRC will include the Coroners Investigation Statement, autopsy report, toxicology report, ancillary reports, police report, child welfare and medical files.

All cases where the deceased child had an open file with a Children's Aid Society (CAS) at the time of death, or within the preceding 12 months, are reviewed.

The contents of the file are distributed to the various experts on the Committee and a report is generated by a Committee member who is designated as the primary reviewer. At the monthly meeting, the entire Committee discusses the report and a consensus report, including recommendations, is confirmed by all members. The final PDRC report is forwarded to the Regional Supervising Coroner, the CAS , if involved, and the Ministry of Children and Youth Services (MCYS). The Regional Supervising Coroner may decide to send the recommendations to other relevant agencies depending on the circumstances of the case.


Death of Child
Investigating Coroner
Conducts investigation
Regional Supervising Coroner
Refers case to expert committee
CAS Involvement
Open CAS file at time of death; or within 12 months prior to death
Medical Issues
Family Concerns
Deaths Under Five Committee (DU5C)
Paediatric Death Review Committee (PDRC)
Reviews case and issues report

Deaths Under Five Committee

In 1995, the Office of the Chief Coroner introduced a protocol to be used in investigating the death of any child under 2 years of age. Over the years, the protocol has been significantly refined, and in December 2006, it was felt appropriate to issue an up-to-date version of the protocol, to be used by the death investigation team (police, coroners, pathologists) to investigate sudden and unexpected deaths of all children **under 5 years** of age. As a result, the *Deaths Under Two Committee* was renamed the *Deaths Under Five Committee* to encompass the new age range.

Coroners and other members of the death investigation team are once again reminded of the importance of not reaching a conclusion that death was due to Sudden Infant Death Syndrome (SIDS) until the investigation is complete. This includes a full police investigation, a forensic autopsy at one of the designated paediatric units (including x-rays, histology and toxicology), and review by the Deaths Under Five Committee at the Office of the Chief Coroner. On occasion, families, CAS and police are advised that deaths are due to SIDS before the investigation is complete. In many cases, this means that police and the CAS close their investigations prematurely believing the case is a natural death and therefore, not preventable or warranting further investigation.

The *Deaths Under Five Committee* reviews and classifies the cause and manner of death in all deaths of children under five years of age.

National Association of Medical Examiners (NAME) Guidelines for Classifying Deaths

The Office of the Chief Coroner uses the National Association of Medical Examiners (NAME) guidelines when classifying infant deaths. This allows for consistent classification in the Coroners system. The following NAME Guidelines have been used by the Paediatric Death Review Committee and Deaths Under Two Committee (now the Deaths Under Five Committee) since 2002:

Definitions:
COD: *Cause of Death*
BWM: *By What Means (Manner of Death)*

Group 1	COD:	A specific disease, injury, or other condition is identified as cause of death (i.e. pneumonia, CHD, overlaying, head trauma, etc)
	BWM:	Classified based on the circumstances
Group 2	COD:	"Classic" SIDS – no cause of death identified after complete autopsy, toxicology, other lab tests, scene investigation, review of medical history.
	BWM:	Natural
Group 3	COD:	Consistent with SIDS – but evidence of a disease condition (such as focal bronchiolitis) is found but the role of the condition in causing or contributing to death is not known
	BWM:	Natural
Group 4	COD:	Sudden unexpected death in infancy – evidence of external condition or risk factor exists (bedsharing with adults, sleeping face down on a soft pillow or adult mattress). Again the role of the external condition/risk in causing or contributing to the death is not truly known or difficult to evaluate, prove, or disprove.
	BWM:	Undetermined *(also list the contributing external factors)*
Group 5	COD:	Unexpected and undetermined cause
	BWM:	Undetermined

Age 0 to 5 yrs Manner of Death	2002	2003	2004*	2005*	2006*
Natural	176	156	178	136	111
Accident	48	35	34	33	32
Homicide	14	11	5	10	9
Undetermined	38	38	41	53	42
Total	**276**	**240**	**258**	**232**	**194**

* NB: Preliminary data for years 2004, 2005 & 2006

SIDS: Sudden Infant Death Syndrome

SIDS is a diagnosis of exclusion, providing all other aspects of the death investigation are negative.

Sudden Infant Death Syndrome (SIDS) is defined as the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, which must include a complete autopsy, examination of the death scene, a police investigation and a review of the clinical history.

It is clear from this definition that the diagnosis of SIDS cannot be made by autopsy alone, but can only be made by the Coroner when the results of the full investigation (police, autopsy, x-rays, toxicology, clinical history) are known. **SIDS is a diagnosis of exclusion.**

SUD: Sudden Unexpected Death

Contributing Factors Include:

- Bed-sharing
- Sleeping face down
- Unsuitable sleeping surface (i.e. adult bed, sofa, car seat)

A sudden unexpected death in infancy may be due to:

1. SIDS
2. Accidental injury
3. Non-accidental injury due to: (a) neglect; (b) abuse
4. A previously undiagnosed natural disease process

If any part of the death investigation in a child under one year of age is positive, then the death will not be classified as a SIDS. The following are some examples where this would apply:

a) Negative autopsy, but evidence of an old healed fracture, which has not been adequately explained by the investigation.
b) Negative autopsy, but a previous history of child abuse.
c) Negative autopsy, but some positive toxicology, which although not considered to be a cause of death cannot be explained.
d) Negative autopsy, but evidence of an unsafe sleeping environment.

Where there is any significant concern regarding any part of the death investigation the cause of death should be classified as a "Sudden Unexpected Death", and the manner of death will be recorded as "undetermined".

Trends in Infant Deaths in Ontario

- Decrease in the number of SIDS
- Increase in the number of SUD
- Unsafe sleeping, bed-sharing were contributing factors to the SUD total
- Ontario in 2006 – 5 SIDS; 27 SUD (with bed-sharing or unsafe sleeping as a contributing factor)
- Preliminary 2007 data is provided on pages 21 - 22.

According to Statistics Canada:

- During the past 25 years, the infant mortality rate in Canada has declined by 52%.
- The infant mortality rates in Canada for 2005 have increased marginally to 5.4 compared to 2003 and 2004 at 5.3 deaths respectively, per 1,000 live births.
- Between 2004 and 2005, the infant mortality rate for babies under one year of age increased in 6 provinces and territories, including Ontario, where the rate was 5.6 per 1,000 live births.

In 1991, there were approximately 140 deaths classified as SIDS in the Province of Ontario. Clearly, since that time, the numbers have decreased to less than 10 per year, the reasons being:

1) **Education**: Back to Sleep Program -referring to placing a baby on their back (supine position) when putting them down to sleep.

2) **Stricter Definition of SIDS**: The Office of the Chief Coroner uses the National Association of Medical Examiners (NAME) guidelines when classifying infant deaths. This allows for a consistent classification in the Coroners system.

3) **Deaths Under Five Investigation Questionnaire:** Designed by the Coroner's Office, the questionnaire assists coroners and police officers to ensure that all aspects of a comprehensive scene investigation are covered.

Reducing the chances a baby will die from SIDS or SUD

DO

- place them down for sleep only on their back until they are one year of age
- put them on a firm mattress in a crib
- keep the baby's room temperature cool (about 65 degrees) when he or she is sleeping
- encourage the baby's mother not to smoke while she is pregnant or afterward around her baby and not to take the baby into smoke-filled environments
- encourage the baby's mother to breastfeed the child. If mother is a heavy smoker or taking prescription or non-prescription drugs and breastfeeds, please ask her to talk with her doctor.
- encourage the baby's parents to seek medical care for the baby when he or she becomes ill
- tell other caregivers of the baby (parents, aunts, uncles, babysitters, etc.) to follow these simple rules, too

DON'T

- use pillows, crib bumper pads, blankets, afghans, duvets or quilts (especially adult bedcovers), over or under an infant
- smoke around babies or let anyone else smoke around them
- overdress or overheat the baby, especially if he or she is ill
- Use sleeping surfaces not designed or approved for infant sleep
- let babies share a sleep surface with another child or with an adult
- put babies in an adult bed or on a sofa to sleep

Unsafe Sleeping and Bed-sharing vs. Co-sleeping

Unsafe Sleeping Environments and Bed-sharing vs. Co-sleeping

The terms SUD (Sudden Unexpected Death) or SUDI (Sudden Unexpected Death in Infancy) are now often used instead of Sudden Infant Death Syndrome (SIDS) in many jurisdictions, including Ontario, in some deaths previously considered to be SIDS. SIDS, being a diagnosis of exclusion, is reserved for deaths of infants where there are no positive findings after a complete investigation has been conducted (see definitions on pages 16 and 17).

Increasingly, the findings of "unsafe sleeping environment" and "bed-sharing" are being recognized as positive findings in the death investigation leading to the manner of death being classified as 'undetermined'. This change is causing a diagnostic shift in the mortality data globally, and can cause confusion.

In Ontario, the Deaths Under 5 Committee considers the sleep environment in all deaths of children who die during sleep, particularly those under the age of one year. Unsafe sleeping environments include surfaces not designed for infant sleep, such as adult beds, couches, armchairs and infant swings. However any sleep surface that is cluttered with pillows, blankets, toys, duvets and other objects is deemed to be an unsafe sleeping environment (examples are presented on page 22).

The terms "co-sleeping" and "bed-sharing" are often used interchangeable by professionals and in the literature. This year, the PDRC and the DU5C have committed to using "bed-sharing" to mean an infant sharing the same sleep surface with someone else (usually an adult, but occasionally a sibling). The term "co-sleeping" is used to describe an infant sharing the same room with the caregiver (s). We support room-sharing but not bed-sharing as the preferred arrangement for safe sleeping (see figure 1).

The number of infant deaths reviewed by the committees where unsafe sleeping practices, including bed-sharing, are factors, is a growing concern. While there is no way of knowing how many parents share a bed with their infants without incident, the frequency with which death results is a genuine public safety issue. Various Child Death Review teams share this view and several organizations have taken a strong stance and have issued position statements and warnings about the risks associated with bed sharing (see box 1 below and box 2 on next page). Although a controversial issue, we believe it would be irresponsible not to report the number of these deaths
reviewed in Ontario. This message is meant to raise the awareness of parents, alternate caregivers, and professionals who work with young children, as it is critical in the prevention of future deaths. Further research in this area is warranted and is ongoing.

Room Sharing (figure 1)

(Graphic courtesy of the Canadian Foundation for the Study of Infant Deaths)

(Box 1)

Safe Sleeping Position Statements and/or Warnings Issued:

1999 – U.S. Consumer Product Safety Commission
1999 – American Medical Association
1992/2000/2005–American Academy of Pediatrics
2004 – U.K. Department of Health
2004 – Canadian Paediatric Society
2004 – Michigan Department of Community Health (Report of the Safe Sleep Work Group)
2007 – Ontario Office of the Chief Coroner - PDRC
2007 – Canadian Foundation for the Study of Infant Death

- U.S. National SIDS and Infant Death Program Support Center
- Michigan Fetal Infant Mortality Review (FIMR) Network

Unsafe Sleeping and Bed-sharing vs. Co-sleeping

Box 2

Data from other Child Death Review Teams

- Baltimore, Maryland's Child Fatality Review team found that **91% of the 81 infants** who died suddenly and unexpectedly during sleep between 2002 to 2006 **were in unsafe sleeping environments – almost 75% of those were bed-sharing.**

- British Columbia's Child Death Review Unit reports that **83% of the infant deaths** reviewed between January 2003 and June 2004 **involved unsafe sleeping practices.** 41% were sleeping on surfaces unintended for child sleep; 23% were "co-sleeping" (bed sharing); 40% involved 2 or more unsafe sleeping practices, with these 2 being the most prevalent combination.

- Citing several research studies, Michigan's Fetal Infant Mortality Review (FIMR) Network takes the position that the potential benefits of bed-sharing do not mitigate against fatal risks.

- The Florida Child Abuse Death Review report for 2007 has identified sleeping environment related deaths as an ongoing problem. In 2006, **22 infants between the age of 2 weeks to 10 months died in unsafe sleep environments; 20 were attributed to "co-sleeping/overlay".**

- Philadelphia officials reported in October 2004 that **two-thirds of the 71 unexpected infant deaths** over an 18-month period were cases of babies who **were sharing a bed or other sleep surface with someone else.** Despite a renewed campaign to promote safe sleep practices, another 57 babies have died since 2006.

- Ohio's Child Death Review team reported that the 174 infant sleep-related deaths in 2005 account for 16% of the 1,117 total reviews for infant deaths, more than any single cause of death except prematurity.

  - Of the 359 reviews of **infant deaths from 29 days to 1 year of age, 42% (152) were sleep-related.** This is equal to the combined number of reviews for the three leading causes of death for this age group: suffocation, SIDS and congenital anomalies.

  - Only 26% (45) of sleep-related deaths occurred in cribs or bassinets. 53% (92) of sleep-related deaths occurred in locations considered unsafe: in other types of beds and on couches.

  - Bed-sharing was the most frequently reported factor for sleep-related deaths.

  - At least **58% (101)** of sleep-related deaths occurred with **infants who were sharing a sleep surface with an adult or sibling at the time of death.**

Unsafe Sleeping and Bed-sharing vs. Co-sleeping

Data – Cases Reviewed in 2006-2007 by DU5C

- A total of 186 cases were reviewed in this 2 year period (2006 – 69; 2007 – 117)
- 77 (41%) cases involved unsafe sleeping environments (2006 – 27; 2007 – 50)
- 41 (53%) of these unsafe sleeping related cases involved bed-sharing with:

Mother only	22
Mother and Father	8
Father only	5
Mother, Father and Sibling	2
Mother and her Partner	2
Mother and a Sibling	1
Sibling only	1

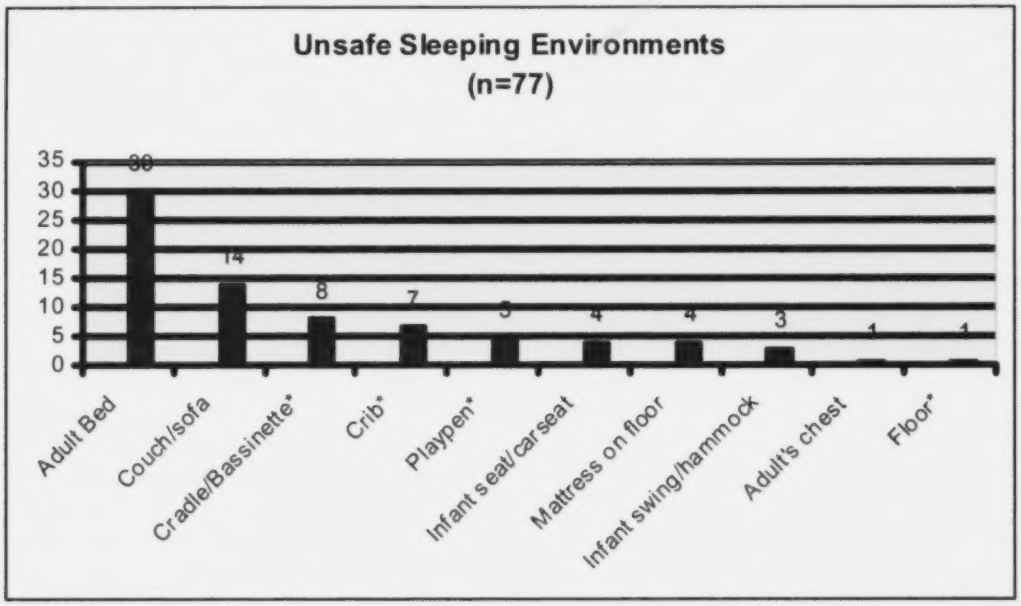
- 45/77 of the infants were male; 32/77 were female
- Age range for bed-sharing deaths: 11 days – 13 months
- Age range for other unsafe sleeping environments: 34 hours – 16 months
- Manner of Death: 71 Undetermined; 6 Accident (asphyxia)

Position of infant:	Number (n= 77):
On Stomach	31
On Back	10
On Side	9
Unknown	27

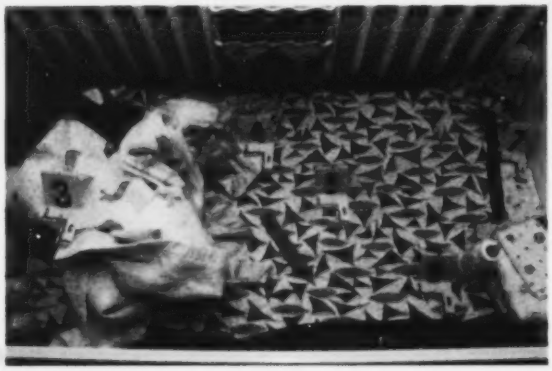
Other Factors:

- 24 breastfeeding; 25 bottle feeding; 28 unknown
- 23 families had CAS involvement within previous 12 months (30%)
- 14 cases involved parents who reported using alcohol and/or drugs (18%)

Unsafe Sleeping and Bed-sharing vs. Co-sleeping



A 10-week-old baby girl, who was put to bed on her side, was found deceased on her stomach in a crib which held several blankets and a quilt.



A previously well 3-month-old baby boy was put to bed by a babysitter on his stomach in a play-pen that contained a large pillow and blanket. In the morning he was found VSA in the same position.

Paediatric Accidental Drowning Deaths in Ontario – A Research Study

Background

Drowning has been identified as a significant cause of mortality in the paediatric population. Although the literature has addressed the issue of drowning as a whole, it has given limited attention to the unique nature of bathtub drownings in particular. The purpose of this study is to demonstrate the unique nature of bathtub drownings, as compared to all other locations of drowning, and identify specific contributing factors.

The foundation of this research comes from 2 retrospective studies completed by Dr. Gino Somers and colleagues, who examined 18 cases of accidental bathtub drowning autopsied at the Hospital for Sick Children, from 1984-2003 and then 50 cases of accidental bathtub drownings in Ontario between 1986-2004. An abstract of the latter study was included in the 2007 Annual Report of the PDRC.

The current study, however, expands to include all accidental bathtub drownings in the Province of Ontario, for 1986-2006 (n=58) and compares these cases to all other accidental drownings for the same time period (n=512).

Design

The database of the Office of the Chief Coroner of Ontario was searched for all accidental drownings in children under the age of 18 years. As the database was created in 1986, no files could be searched prior to this date. Therefore, all cases that had been closed within this time period were included. Cases where the manner of death was homicide, suicide, or undetermined were excluded.

For all cases (n=570), the date of death, age and sex of the decedent, and location of drowning were recorded. For bathtub drownings in particular, it was recorded whether or not there was a reported lack of adult supervision (and the reason, where provided), if the child was in a bath seat, if the child was co-bathing with a sibling, and whether or not the child had a predisposing medical condition.

Results

A review of all accidental drownings during the 21-year period (n=570) found 360 cases in open water (281 males and 79 females), 152 cases in pools (103 males, 49 females), and 58 cases in bathtubs (23 males and 35 females). Open water drowning represented the majority of deaths in all age categories except 0-2 years, in which bathtub drownings represented the majority of deaths (Fig. 1). The annual trend for all drownings, excluding bathtubs, was analyzed and demonstrated a significant decrease ($p = 0.0002$, Chi-Squared Analysis for Specified Proportions). The annual trend for bathtub drownings was examined and demonstrated as insignificant ($p = 0.7112$, Chi-Squared Analysis for Specified Proportions). Bathtub drownings were evenly distributed throughout the year, with no significant trend demonstrated ($p = 0.3012$, Chi-Squared Analysis for Specified Proportions). All other locations demonstrated a significant trend, however, with 35% occuring in the spring and 51% occuring in the summer (n=176 and n=259, respectively, $p < 0.0001$).

As bathtub drownings represent the majority of drownings under the age of two, the annual trend of all drownings in this age category was analyzed (n=66). The trend demonstrated a significant decrease ($p = 0.0089$, Chi-Squared Analysis for Specified Proportions).

The number of males and females were compared for bathtub drownings and all other locations (n=58 and n=512, respectively) (Fig. 2). For all other locations, excluding bathtubs, males outnumbered females three to one, demonstrating significance ($p<0.0001$). For bathtub drownings, females outnumbered males (n=35 and n=23, respectively), although the difference between the two was not significant ($p=0.1151$). The mean age for bathtub drownings was 4 years, 8.5 months, with a median age of 12 months. For open water, the mean age was 10 years and 1 month, with a median of 10 years, and for pools the mean age was 4 years, 6 months with a median of 3 years.

In children 3 years of age and under, 94% of cases involved a lack of adult supervision. In children four years of age and older, 84% of cases involved a predisposing medical condition such as epilepsy or cerebral palsy. Parental reasons for a reported lapse in adult supervision for bathtub drownings is represented in Table 1.

Paediatric Accidental Drowning Deaths in Ontario – A Research Study

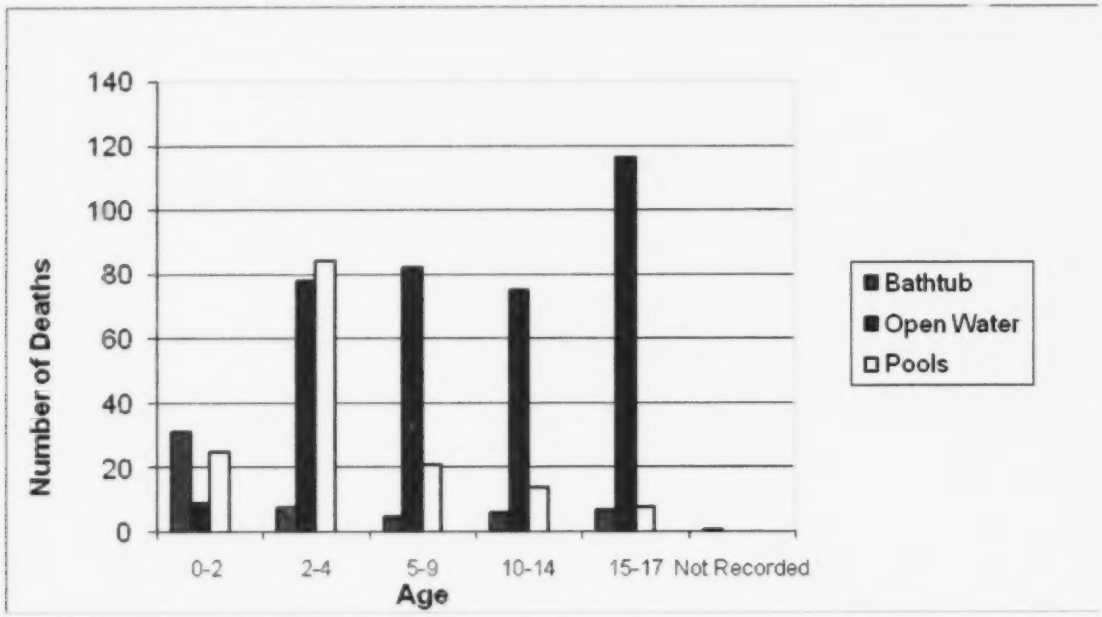


Figure 1: All accidental drownings over a 21-year time period (n=570)

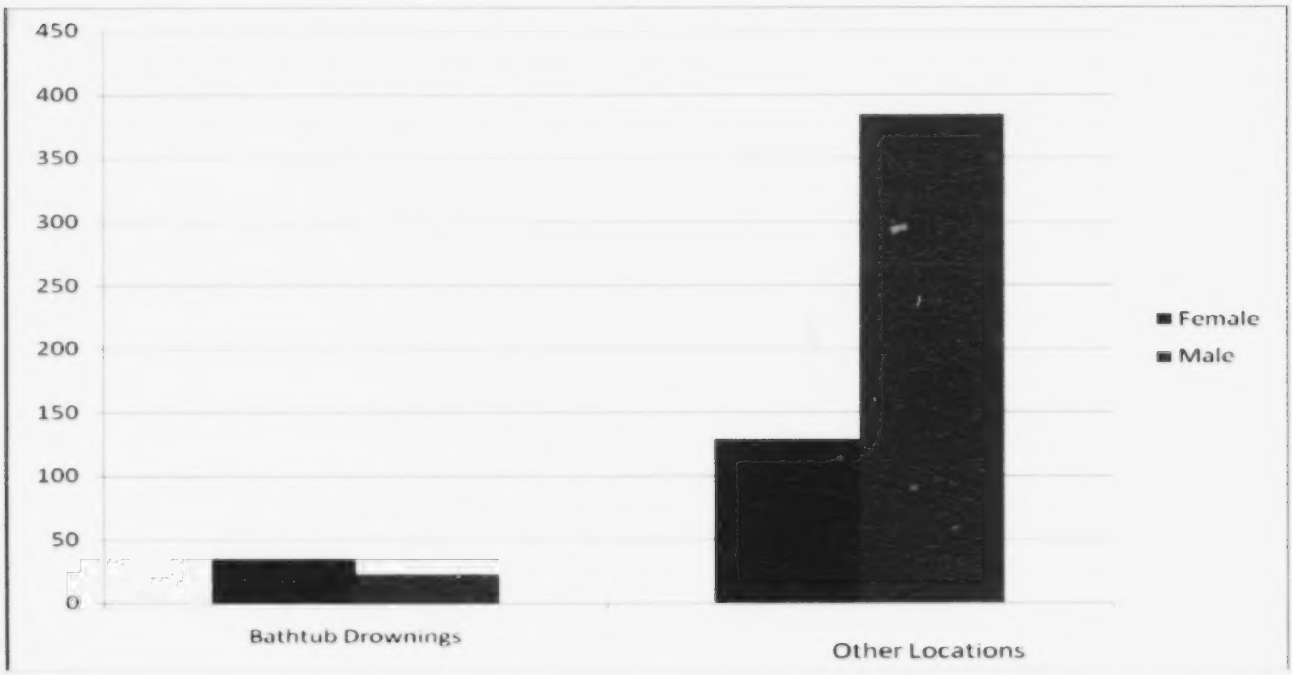


Figure 2: Number of males and females by location (bathtub drownings vs. other locations)

Paediatric Accidental Drowning Deaths in Ontario

Table 1: Reasons for lack of adult supervision, as provided by parents.

Reason	Number of Cases	Reason	Number of Cases
Telephone call	9	Answering door	2
Usual practice	7	Attending to other sibling	2
Adult fell asleep	5	Preparing food	2
Chores	3	Outside of home	2
Bedtime preparation	3	Watching TV	1
Unaware of location	3	Smoking	1
Cobathing	2	Not given	9

Conclusions:

The current study found that bathtub drownings are unique when compared to all other locations of accidental drowning, in terms of the trends they exhibit, the population they affect, and the circumstances that contribute to them. As all other locations of drowning have demonstrated a decreasing trend, current preventative campaigns are ineffective at reducing bathtub drownings as a target population, as these cases have remained stable over the 21-year study period.

Within the cohort of bathtub drownings, two subpopulations exist. Children three years of age and younger are affected by a marked lack of adult supervision, which occurred in 94% of cases. This may be due to a false sense of security when the child is in a bath seat or co-bathing with a sibling, as these factors were present in 50% of cases in children under the age of two. This data supports the claims of previous studies and emphasizes the importance of educating parents that these factors are not a substitute for adult supervision.

In contrast, children four years of age and older are characterized by predisposing medical conditions, which were present in 84% of cases. These conditions include epilepsy, cerebral palsy, and severe developmental delay.

It is recommended that preventative campaigns be developed independently for drownings in bathtubs, according to the factors identified in this study. As a result of this study, it is hypothesized that effective development and implementation of preventative bathtub drowning campaigns will be associated with a decrease in annual bathtub drownings.

(Research conducted by Ms. Laura Desveaux, University of Toronto Forensic Science student, with Dr. Gino Somers, The Hospital for Sick Children, and Ms. Karen Bridgman-Acker and Dr. Jim Edwards, The Office of the Chief Coroner)

Adolescent Suicide in Ontario—Determinants of Community Health Projects

Adolescent Suicide in Ontario

(Excerpts from research studies completed by University of Toronto Medical Students: Gursharan Soor (Study #1) and Moises Maria (Study #2)

Background: For the purpose of these studies only those cases that were investigated and concluded as "suicide" by the Office of the Chief Coroner during the specified time periods were considered. Suicide is defined as the intentional act of a person who knows the probable consequences of his/her actions is death. The criteria for classifying a death as suicide in the province of Ontario are different and potentially more rigorous than in other jurisdictions. In Ontario, a death is classified as a suicide once all other possible manners of death have been ruled out. Coroners must begin their investigation with a presumption against suicide and use the standard of high probability. (Beckon v. Young. 1992, 9 O.R. (3d series) 256).

According to Statistics Canada (2008) suicide has taken the lives of over 20,000 Canadians, including 1500 children and teenagers aged 11 to 19 years, since January 2000. Canadians are seven times more likely to die from suicide than homicide; it affects individuals of all ages, and is reportedly the second leading cause of death in people aged 11 to 19 years.

Study #1: <u>The Effects of Gender and other Factors on Adolescent Suicide</u>

This study attempted to identify similarities and differences in patterns of suicide between male and female adolescents aged 11 - 18 years in Ontario. The major determinant of health assessed was gender, and areas of interest included age, mechanism, and location of suicide. A variety of risk factors, including a history of previous suicide attempt, alcohol/drug abuse, psychiatric treatment, mental or physical illness, and the involvement of a children's aid society were also evaluated. We hoped to identify patterns of suicides and potential targets for intervention in order to help decrease the incidence of suicide, a major social and medical issue, for Ontario's adolescents.

Methodology:

Research Design: A total of 370 adolescents between the ages of 11 and 18 committed suicide between January 2000 and November 2006 in Ontario. The Office of the Chief Coroner (OCC) investigated all 370 cases (253 males and 117 females) and the pertinent non-identifying data relevant to these cases was extracted by the OCC from its database and provided to the researcher. The researcher categorized the data into two groups based on gender, and then further subcategorized the data based on age at suicide, location of suicide, and method of suicide. Method of suicide was subdivided into violent and non-violent, and location was subcategorized into residence, school, hospital, and urban or rural outdoors. All data was originally collected by the OCC, and the researcher did not personally review any patient files or charts. The study population was defined based on four criteria: adolescent (aged 11-18), resident of Ontario, suicide committed in Ontario, and suicide committed between January 2000 and November 2006. As a retrospective quantitative study, no measurement tools or research instruments were used (i.e. surveys, questionnaires, etc).

The data is complete from 2000 to 2005. However, there are several deaths in 2006 that are still being investigated. Some of these may be suicides, but since this has not been confirmed, they were not included in this study.

Adolescent Suicide in Ontario– Study #1

Results and Conclusion

Demographics: This study included 253 males (68.4%) and 117 females (31.6%) (Figure 1). Individual age for the entire sample ranged from 11 to 18 years, with an average of 16.1 ± 1.7 years. Males tended to be on average older than females at suicide, 16.3 ± 1.6 years versus 15.6 ± 1.8 years, but there was no statistically significant difference between the two groups (p=0.1070). Interestingly, even though males had a higher average age then females, they had a lower minimum: individual age ranged from 11-18 years in males but 12-18 years in females (Figure 2).

Population information for Ontario is only available for 2001 and 2006, and nothing in between (since the Canadian census is done every 5 years), but due to incomplete data from the OCC for 2006, a comparison of suicide rates between 2001 and 2006 could not be done. The adolescent population of Ontario increased from 1,558,260 in 2001 to 1,651,560 in 2006. The adolescent suicide rate in 2001 was calculated to be approximately 1 per 27,000.

Method of Suicide: Method of suicide was subdivided into violent and non-violent (Centre for Suicide Prevention, Calgary, 1998). Violent methods included shooting oneself with a shotgun or hand rifle, jumping or falling from a significant height, non-accidental drowning, purposeful collision as a pedestrian with a car or train, and asphyxia by hanging. Non-violent methods included asphyxia by carbon monoxide poisoning from inhalation of furnace fumes or vehicle exhaust, drug toxicity and alcohol toxicity. Violent methods of suicide were more frequent than non-violent methods, accounting for 91.9% (n = 340) of all suicides, although females were twice as likely to use non-violent methods compared to males (Figure 3). Overall, males used violent methods of suicide significantly more frequently than females (p=0.0352).

Location of Suicide: Location of suicide was analyzed in two different ways. First, location of suicide, as coded by the OCC, was subcategorized into residence (which includes inside or outside the decedent's home or that of a friend or relative), school, hospital, and urban (park, public area, parking lot) or rural (wooded areas, fields, forests) outdoors. While 73.1% (n = 185) of males committed suicide at their residence, 26.9% (n = 68) committed it elsewhere. Similarly, 71.8% (n = 84) of females committed suicide at their residence while 28.2% (n = 33) committed it elsewhere. However, no statistically significant difference in the location of suicide between males and females was found when analyzed in this way (p=0.7898). The most common non-residential place to commit suicide was the rural (8.9%, n = 33) or urban (7.8%, n = 29) outdoors. Three patients (0.8%) committed suicide in the psychiatric ward of a hospital.

The second method of analysis included a geographical breakdown of the data (Figure 4). Although there was no significant difference in the rates of suicides between males and females in different geographical areas, there was a significantly higher number of total suicides in Northwestern Ontario compared to rest of the province (p=0.0001). Although data on race was not analysed, it is noteworthy that this region contains the highest proportion of First Nations Youth in the province.

Involvement of Other Factors: Many adolescents had involvement of multiple factors, some of which may have contributed to their suicide (Table 1). Despite the numerous factors however, only one showed a statistically significant difference between males and females. A history of a previous suicide attempt was more common in females than males, occurring at a frequency of 35.0% (n = 41) versus 11.9% (n = 30), respectively (p=0.0001).

The most common factor present in both males and females was a history of past or present psychiatric treatment, found in 17.9% (n = 66) of cases. This included 43 (65.2%) males and 23 (34.8%) females.

Adolescent Suicide in Ontario– Study #1

Alcohol and drug involvement was more common in males than females. Alcohol and drugs were involved in 11.1% (n = 28) and 4.7% (n = 12) of male cases, whereas they were involved in only 9.4% (n = 11) and 4.3% (n = 5) of female cases, respectively. In comparison, the families of females were more likely to have been receiving assistance from the CAS: while CAS was involved in only 8.3% (n = 21) of male suicide families, it was involved in 14.5% (n = 17) of female suicide families (p=0.0664). A history of abuse or neglect, and a history of chronic mental or physical illness, was also more common in females than males.

Approximately half (n = 159) of the individuals had involvement of no known or identifiable factors. It should be noted that information regarding substance abuse is gathered from family members and therefore may not always be accurate.

The prevalence of male adolescent suicides is higher than female adolescent suicides, but there was no statistically significant difference in terms of age between the two groups. All adolescents were more likely to commit suicide at their own residence, and there was no significant difference between males and females (p=0.7898). Males were more likely to use violent methods of suicides (p=0.0352) and females were more likely to have a history of a previous suicide attempt (p=0.0001). Overall, patterns of suicide are very similar between males and females aged 11 to 18 years.

This information may be helpful in decreasing suicides by encouraging caregivers of high-risk individuals to remove any lethal substances, such as intoxicating substances, drugs, or objects, such as hand rifles and shotguns, from their homes. Areas that could be used to jump from should also be securely fenced. High-risk adolescents should also be monitored for possession of items that could be potentially used for hanging, such as ropes and belts.

Prevention programs need to target both males and females. Programs need to be developed and implemented that help identify at-risk adolescents, and the CAS, when involved, should work alongside teachers and parents to screen for at-risk individuals and help create environments and living spaces in which the tools used for committing suicide are removed.

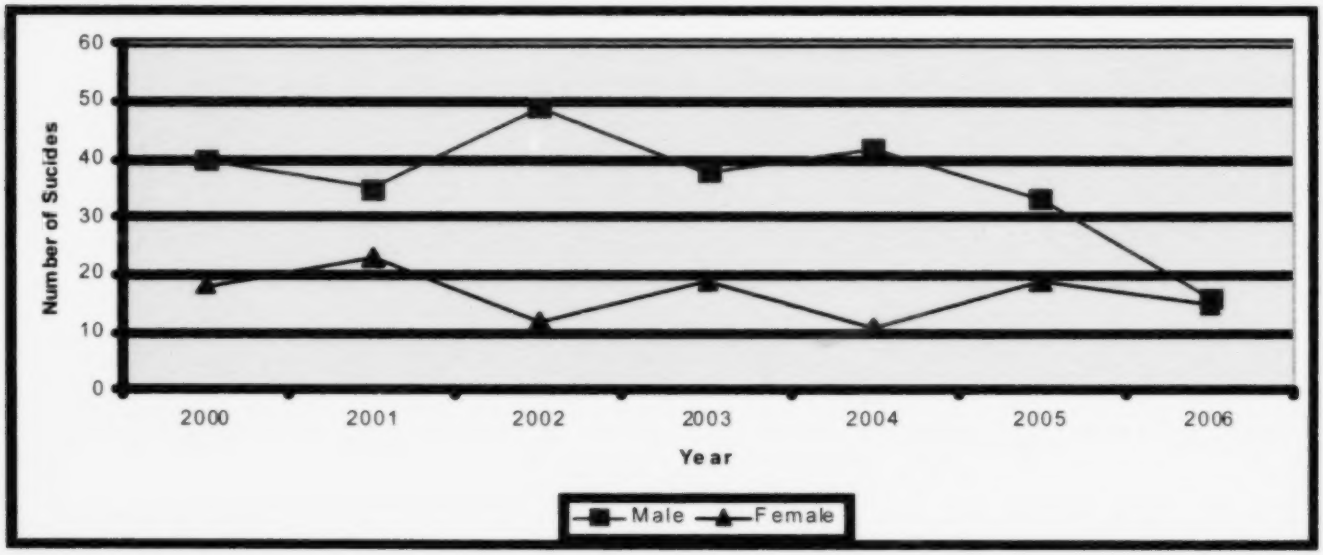


Figure 1: **Suicides per year based on gender.** This graph illustrates the number of confirmed suicides committed by males and females between the ages of 11 - 18 years from 2000 to 2006. The numbers of suicides each year has remained relatively consistent over this time period. The downward trend in male suicides in 2006 (and perhaps 2005) may be due to incomplete data, as many deaths from 2006 are still being investigated.

Adolescent Suicide in Ontario– Study #1

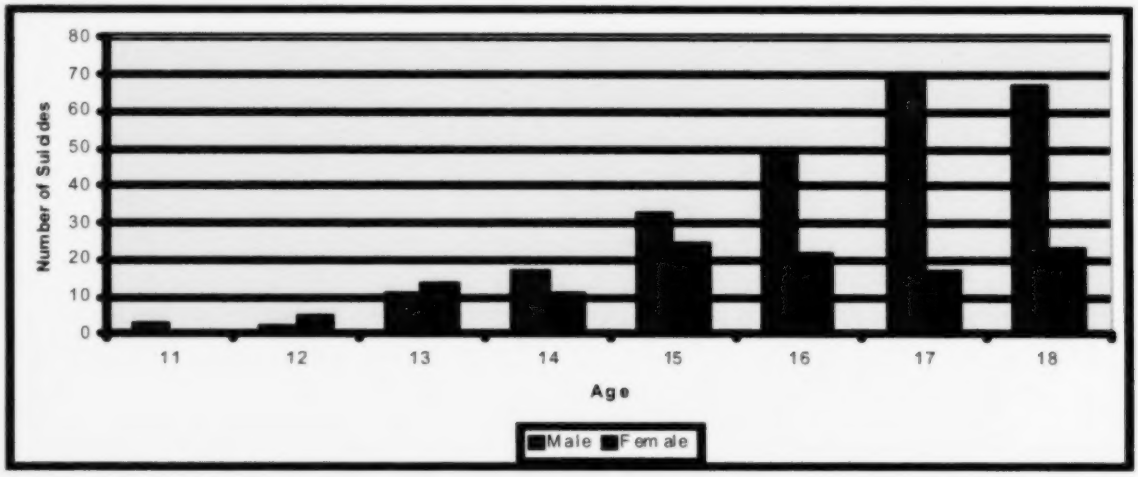


Figure 2: **Age at suicide of males and females from January 2000 to November 2006.**
The prevalence of male suicides is higher than females and increases with individual age. Overall however, there is no significant difference in age at suicide between genders.

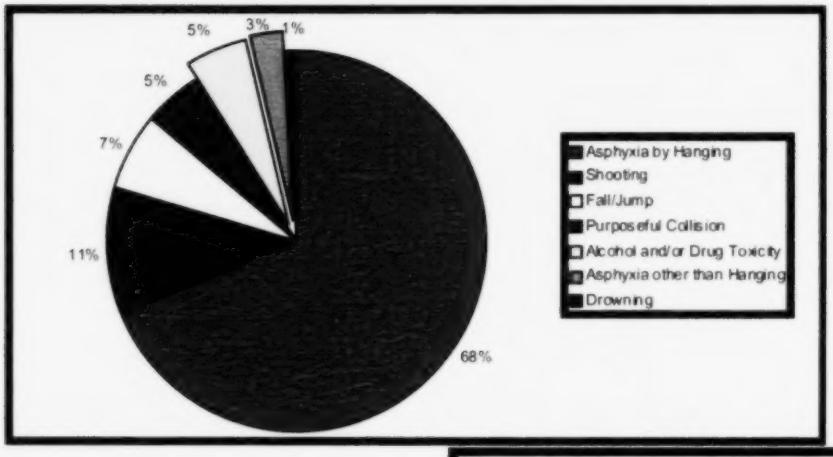


Figure 3: **Method of suicide employed by both males and females, combined.**
Violent methods of suicide were more common than non-violent methods. In particular, hanging was the most common method, followed by shooting. Males were statistically more likely to use violent methods of suicides compared to females. Non-violent methods of suicide included asphyxia by carbon monoxide and drug toxicity.

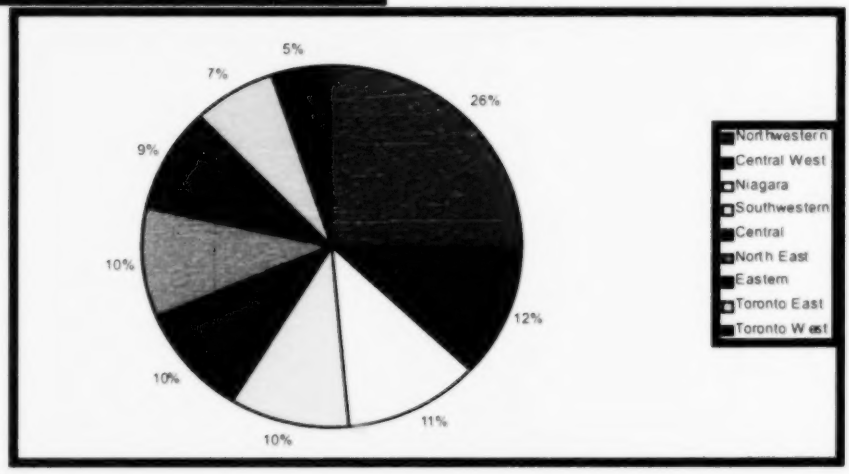


Figure 4: Geographical distribution of adolescent suicides in Ontario from January 2000 to November 2006.
A significant number of suicides were committed by adolescents who were from Northwest Ontario compared to all other parts of Ontario.

Adolescent Suicide in Ontario—Determinants of Community Health Projects—Study #2

Study #2: The Temporal and Seasonal Trends in Youth Suicide

Abstract

Suicide is second only to accidents as the most common cause of mortality in youth ages 11-18 in Canada. In order to better understand adolescent suicide, one should understand the present trends and demographics of those who have taken their own lives. The aim of this study was to determine the current temporal and seasonal trends in adolescent suicide in the province of Ontario. All suicides in adolescents age 11 to 18 and who died from 2000 to 2006 were analyzed. For the temporal portion of the study we compared those individuals who died from 2000-2002 to those who died from 2003-2005. For the seasonal portion we compared those who died in the fall and winter to those who died in the spring and summer. We compared them on the variables of age, sex, location of death and mechanism of death.

Temporally, there was no difference between the two time periods in age, sex, and location or mechanism of death. Seasonally, significantly more deaths occurred in the spring and summer (189) compared to the fall and winter (152). This seasonal difference was attributed to the number of females committing suicide in the warmer months; 64 died in the spring and summer compared to 39 in the fall and winter. There was no statistical seasonal difference in where suicides occurred or in the mechanism of suicide. It is proposed that the seasonal differences in this study may be due to decreased surveillance and social programs/social supports (no school) and increased social isolation at a time of year when youth spend more time on their own. In addition, the disproportionate number of females dying in the spring and summer may be a function of untreated depression in this age group, a finding that has been substantiated in other studies.

Methods

The data for this study was extracted from the records at the Office of the Chief Coroner and was inputted into an Excel spreadsheet prior to the commencement of this study. The subjects were all youth, ages 11 to 18 inclusive, whose death mechanism was classified as suicide from January 1, 2000 to December 31, 2006. The data that was extracted from each individual case file and placed into the database included the case number, the date of death, and region in which individual resided, sex, age, location of death and the cause and manner of death.

The data was then coded for the purposes of this study. The date of death was used to determine the season in which each individual died. For instance, if the individual died between the dates of December 21st and March 20th they were determined to having died in winter. The location in which the suicide occurred was divided into those that were completed in the individual's home and those who committed suicide outside their home (i.e. urban outdoors, rural outdoors, hospital, subway, motor vehicle, railway, other residence, hotel/motel, while in custody). The method of death was then categorized into violent deaths and non-violent deaths. Those who committed suicide via shooting, hanging, jump from height or motor vehicle trauma were placed under the umbrella of violent death, while overdose, poisoning, or asphyxia by gas were considered non-violent deaths. This classification of violent death vs. non-violent death is well established in the literature (Dumais, Lesage, Lalovic, Sequin and Tousignant, 2005). Prior to analyzing the data, we filtered and did a count on each of the above variables to ensure that there was no error on data input or recording.

Adolescent Suicide in Ontario—Determinants of Community Health Projects—Study #2

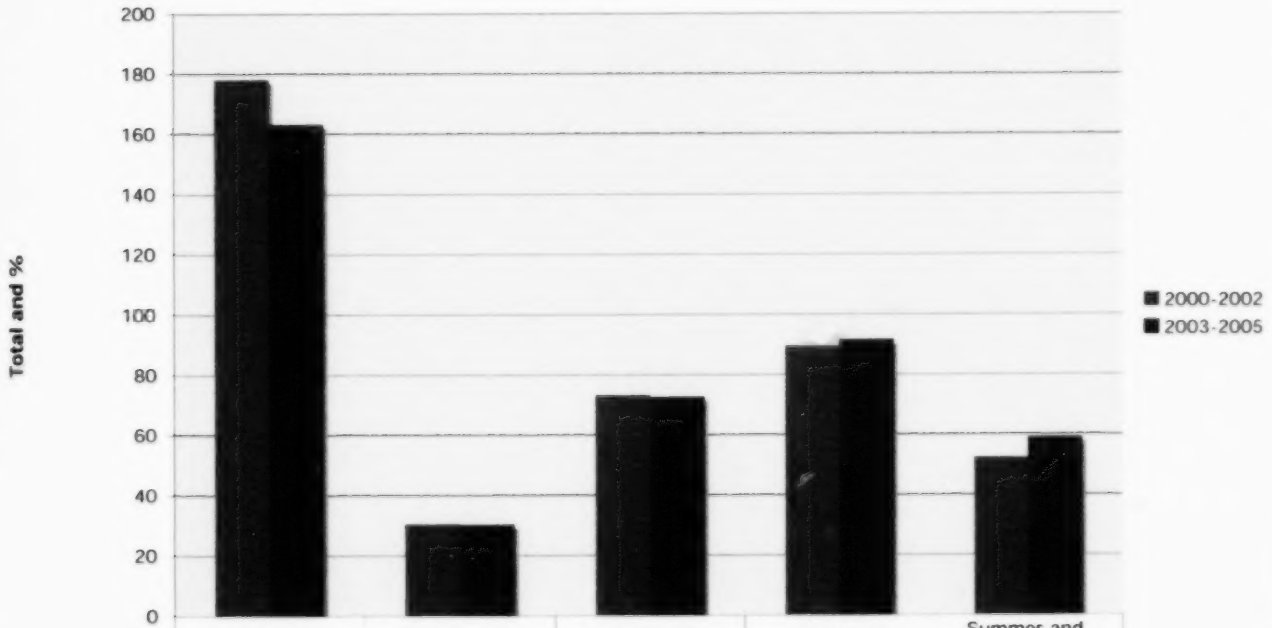
Discussion and Findings

Temporal Trends

In this retrospective study, there were 373 youth suicides from 2000 to 2006. Statistically, the number of yearly suicides has remained relatively constant, which is consistent with other research (Langlois and Morrison, 2002; Shaw et al. 2005). However, there were comparatively fewer deaths in the latter three years compared to the first three years. Furthermore, suicide demographics have also remained consistent. The suicide victims had a mean age of 16. The male-to-female ratio (7:3) has also remained unchanged and is consistent with youth suicide in other parts of the world (Cheifetz et al. 1987; Sigurdson et al. 1994; Schmidt, Muller, Dettmeyer and Madea, 2002). The majority of subjects committed suicide within their homes, thus indicating that these individuals preferred to take their own lives in familiar areas. This may also reflect the availability of means to take their own lives. Roughly 90% of individuals in this study died using a violent mechanism with the majority of deaths caused by hanging or firearms. Therefore, it may be that the adolescents in this study had easy accessibility to potential ligatures and firearms.

Interventions should be aimed at those individuals who are at increased risk of taking their own lives. Based on the results of completed suicide in Ontario youth, suicide reduction strategies could include a survey of the physical environment of at-risk youth and the subsequent removal of potential lethal means of suicide. However, this should only be a component of the suicide intervention strategy, as the majority of the focus should fall on the psychosocial issues that may result in suicidal ideation in the first place.

Change in temporal demographics between 2000-2002 and 2003-2005.



	Total	Females (%)	Residence (%)	Violent	Summer and Spring
2000-2002	178	30.3	73	89.3	52.2
2003-2005	163	30.1	72.4	91.4	58.9

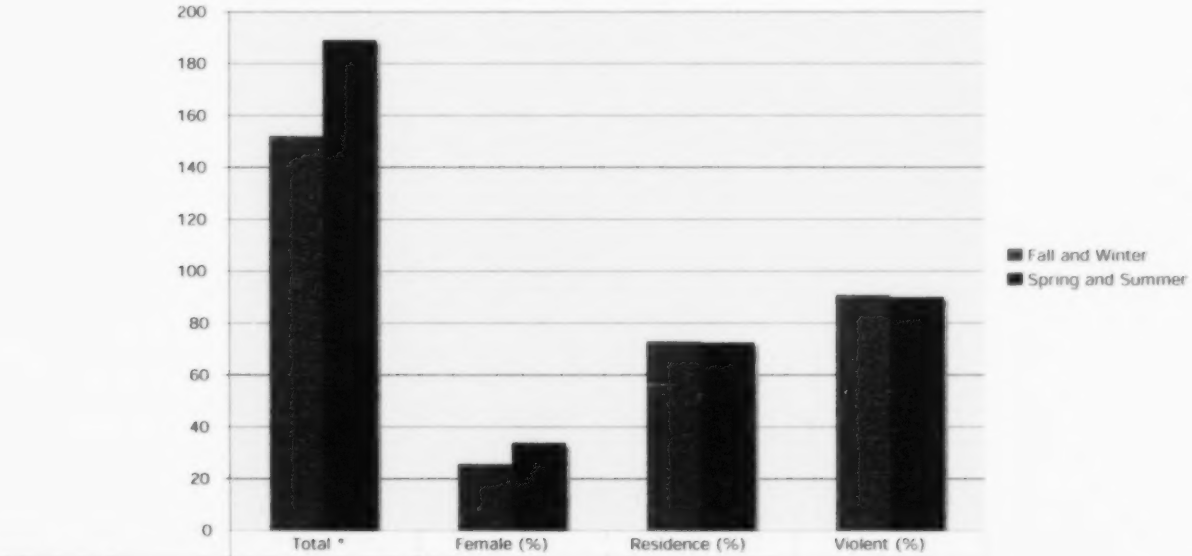
Adolescent Suicide in Ontario—Determinants of Community Health Projects—Study #2

Seasonal Trends

As was found in studies throughout the world in all age groups (Kevan, 1980; Frank and Lester, 1988; Preti and Miotto, 1998; Yip et al. 1998; Lee et al. 2005), there was a disproportionate number of suicides in the spring and summer months. Although it was not significant, this disparity has become more pronounced from 2003 to 2005. There was no difference in where the suicides took place and the mechanism of suicide between these two periods. This differed from a study in Italy where it was found there were proportionately more violent suicides in the late spring and a consistent number of non-violent suicides over the four seasons (Preti and Miotto, 1998). This may be a function of different socio-economic and cultural factors. There was a difference in sex as we found that there was a tendency for females to commit suicide in the spring and summer. This was not the case for males.

One theory for the seasonal difference may be that surveillance of youth decreases in the warmer months. Therefore, there may be a need to provide more social programming and minimize social isolation in youth during these warmer months so as to occupy their free time, provide social support and provide some surveillance. Another theory is that this seasonal difference is a function of depression. After isolating depression from other psychiatric disorders, Duganay et al. (2003) found the seasonal distribution was seen only in depressed individuals who presented to the ER. Furthermore, the fact that depression is twice as likely in women (Patten, 2000) may, in the context of this theory, explain why more adolescent girls are falling victim to suicide in the spring and summer compared to the fall and winter. In fact work done in Sweden has demonstrated an inverse relationship between the use of antidepressants (thus the treatment of depression) and the seasonality of suicide (Rhimer, Rutz, Pihlgren and Pestality, 1998). In other words; as the prescription of antidepressants increases, the difference in suicides between the warmer and cooler months decreases. Therefore, these findings may suggest that depression may be under-treated in Ontario's youth, which may account for the seasonal differences. This issue requires further investigation.

Figure 2. Change in Seasonal Demograghics between Fall/Winter and Spring/Summer



	Total *	Female (%)	Residence (%)	Violent (%)
Fall and Winter	152	25.7	73	90.8
Spring and Summer	189	33.9	72.5	90

*** statistical significance**

Sudden Unexpected Deaths in Infancy Occurring in Car Seats

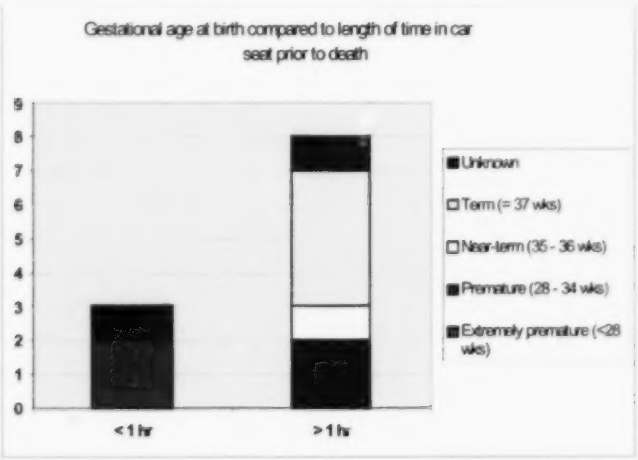
Dr. Amanda Murphy, Clinical Fellow in Paediatric Pathology, Hospital for Sick Children
Ms. Karen Bridgman-Acker, MSW, RSW, Office of the Chief Coroner

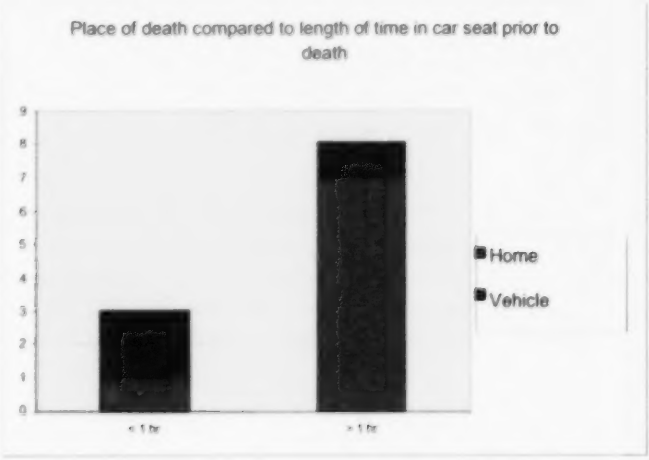
Proper use of car safety seats is essential to save lives and prevent injuries to children in motor vehicle crashes. However, the upright or semi-reclined posture adopted by infants seated in child safety seats can present a challenge to cardio-respiratory function, particularly in preterm infants. A number of studies have shown that a high percentage of premature infants are prone to episodes of oxygen desaturation, bradycardia and apnoea when seated in car seats for prolonged periods. Decreases in oxygen saturation have also been demonstrated in term and near-term healthy newborn infants when seated in car seats for up to 90 minutes. Despite an association between child safety seats and evidence of cardio-respiratory compromise, major adverse events and sudden unexpected deaths in infancy occurring in car seats are not well documented. In order to investigate any association between sudden unexpected deaths in infancy and infant car seats, a retrospective review of cases occurring in the Province of Ontario during an 8 year period (1999-2006) was performed.

The database of the Office of the Chief Coroner of Ontario was searched for deaths occurring in infant car seats. Cases where death was attributed to natural disease were excluded. Eleven cases of sudden unexpected death occurring in infant car seats were identified; these included 5 females and 6 males. Five infants (50%) were premature at birth (range: 23 – 36 weeks gestational age) and 4 infants were born at term. Gestational age at birth was not known for the remaining 2 cases. Corrected age ranged from 4 days to 8 months, with an average of 2.5 months. Body weights ranged from 2.54 to 10 kg. Length of time in car seat prior to death ranged from less than 15 minutes to eleven hours.

In 3 cases, the infant had been placed in the car seat for a short period of time (less than one hour). Two of these deaths occurred in a vehicle and one occurred at home as the decedent's mother prepared to transfer the infant in the car seat to a vehicle. Two of these cases were premature infants (23 and 27 weeks gestational age) and required supplemental home oxygen for respiratory complications of prematurity. Of note, one of these infants had passed a car seat test prior to discharge from hospital 1 month prior to death. The other infant was not known to be premature, but had a ventricular septal defect.

Eight deaths occurred where the infant had been in the car seat for a number of hours. The majority of these deaths occurred at home (5 cases) or in the home of a friend (1 case) or relation (1 case). In all of these cases, the infant had been placed to sleep in the car seat. One death occurred during a long journey. Three of these infants were premature (32 – 36 weeks gestational age), but none had a prior history of cardiac or respiratory disease. Seven of these cases had prior CAS involvement.



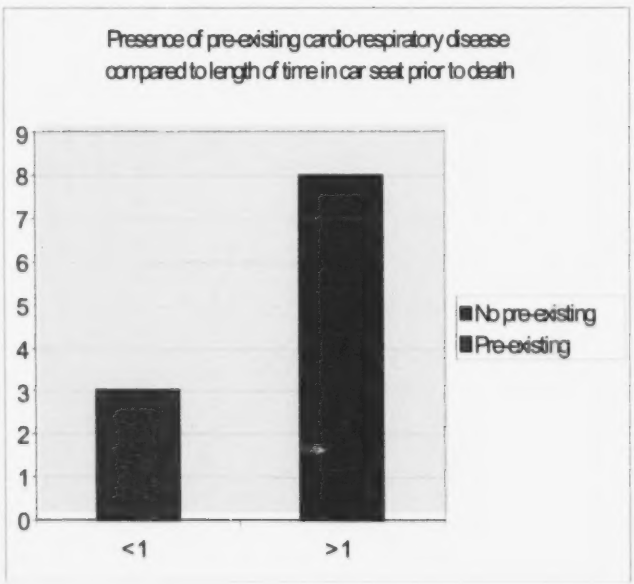


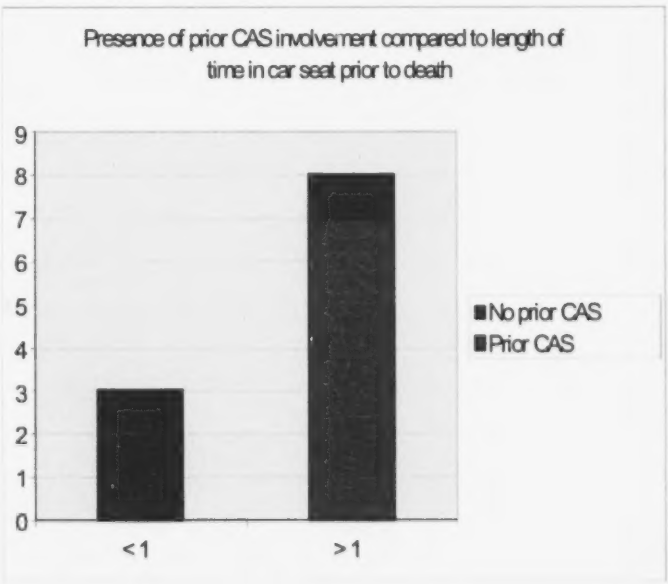
Sudden Unexpected Deaths In Infancy Occurring In Car Seats

In conclusion, our review identified 2 types of infant death occurring in car seats. The first group were infants with respiratory complications of extreme prematurity or with other cardio-respiratory disease who were placed in their car seats for travel for a short period of time. The second group were mainly term or near-term infants with no known cardio-respiratory disease who were placed to sleep in their car seats and unsupervised for an extended time period. These findings highlight a number of important points. Firstly, car seats are not designed or approved for infants' sleep. In premature infants, the frequency of adverse cardio-respiratory events has been shown to increase during sleep. Since car seats alone can compromise cardio-respiratory function in both term and preterm infants, sleeping in a car seat is likely to further increase the risk of cardio-respiratory compromise. Car seats may therefore contribute to sudden unexpected deaths in infancy in the form of a hazardous sleeping environment. Secondly, even short periods of time in a car seat may be hazardous for certain infants, particularly premature infants and infants with known cardio-respiratory disease. The American Academy of Pediatrics' recommendations (shown below) may help to minimize risk of adverse cardio-respiratory events in these children. It is important to recognize that car seat testing prior to discharge is a non-standardized test that will not always identify at risk infants. Parent education about the risk of car seats and promotion of supervision, minimization of travel and limitation of car seat use in all young infants (term as well as preterm) are likely to be beneficial in preventing infant deaths in car seats.

The American Academy of Pediatrics (AAP) recommends:

- preterm infants should not be left unsupervised in car safety seats
- car safety seats should be used only for travel
- travel should be minimized during the first months of life
- preterm infants should undergo a car seat challenge before hospital discharge
- infants who do not pass a car seat challenge should not travel in a car safety seat





Organ Donation in Criminally Suspicious and Homicide Cases (Children 18 Years of Age and Under)

In 2002, the Office of the Chief Coroner (OCC) developed guidelines to ensure that organ donation occurred, whenever possible, in children's homicide and suspicious death cases. This process was refined in 2006.

The Process

Attending physicians should contact a coroner as soon as possible whenever they recognize that a child in their care is a potential organ donor *and* that the case will require investigation by the OCC when death does occur, even if death has not yet been pronounced.

The OCC will immediately review the case to determine whether organ donation will be possible without compromising the integrity of the death investigation. An investigating coroner will attend at the hospital to review the medical records and examine the victim. The OCC may request additional investigations such as; a CAT scan (CT), skeletal survey or toxicology for forensic purposes, with all imaging to be interpreted by a paediatric radiologist. A Police Identification Officer may attend at the hospital to take photographs of abnormal findings.

There will then be consultation between a senior official of the OCC, the investigating Police Service, a Paediatric Forensic Pathologist, the Trillium Gift of Life Network Organ Coordinator and other individuals as appropriate (i.e. Children's Aid Society, (CAS), Crown Attorney or Suspected Child Abuse and Neglect (SCAN) program).

If organ harvesting is permitted, a Police Identification Officer will be present in the operating room during organ harvesting to take photographs as necessary. Following organ harvesting, a full paediatric forensic autopsy will be conducted on all criminally suspicious and homicide cases in a Paediatric Forensic Unit. Any harvested organs, which are found to be unsuitable for transplant, should be immediately returned to the Paediatric Forensic Pathologist for examination.

Results

The OCC permits organ harvesting in the great majority of these cases. In 2007, the OCC approved organ harvesting from 25 children across the province, including homicide victims. Eighty-one organs from these children were transplanted, including two hearts into patients with end-stage heart disease.

Since the present protocol was introduced in 2002, there have been no cases in which organ donation interfered with the death investigation or court proceedings.

Case Study

The attending physician of a teenage male, who had sustained blunt trauma to the head and extremities under suspicious circumstances, contacted the OCC when the possibility of organ donation was recognized, before the pronouncement of brain death.

A coroner attended at the hospital to review the medical records and examine the victim. The OCC requested a CT scan of the chest, abdomen and pelvis to rule out additional injuries. It was determined that no injuries to the torso were sustained, and it was decided to permit harvesting of all organs except the eyes, bones and skin.

Family consent to organ donation was obtained, and the approved organs were harvested with a Police Identification Officer in attendance. A full paediatric forensic autopsy was then conducted.

The heart was not suitable for transplant for medical reasons. However, the heart valves were removed for transplantation; the lungs were transplanted into a teenage girl with end-stage cystic fibrosis; the liver was transplanted into a teenage boy with end-stage Wilson's Disease; and the kidneys were transplanted into two adults who had been on dialysis for eight years. All recipients are doing well, and the victim's family received some comfort that some good had arisen from their tragedy.

Regional Supervising Coroner's Review: A Tool for the Paediatric Death Review Committee

A case review by the Paediatric Death Review Committee may lead to recommendations; these may address systemic issues or may be case specific. One of the tools available for Committee recommendation, especially when medical issues are identified, is a Regional Supervising Coroner's Review.

Case Report

A 4-year-old boy presented to a community hospital emergency department with a 24-hour history of vomiting, diarrhea and fever. His vital signs in the emergency department were: temperature 36.4 Celsius, pulse 154, and respiratory rate 28. His weight was noted to be 13 kg (less than 3rd percentile). His blood pressure was not recorded during his stay in the Emergency Department.

About 1 hour and 15 minutes after the child's arrival, the physician saw him. He was noted to be crying. His vital signs were documented: temperature 37.2 Celsius, pulse 160 and respiratory rate 28. The physician noted that his mucous membranes were moist documenting unremarkable examinations of the chest and heart. A 25 mg dose of Gravol (dimenhydrinate) was provided intramuscularly with a physician order to push oral fluids—Pedialyte was provided.

About one hour later, nursing documentation noted that he was tolerating Pedialyte without volumes recorded. Urine output was not documented. The nursing staff noted that he vomited a couple of times while in the department, although a hand written note (dated two days later) from the physician noted no vomiting. A chest x-ray was completed without concerning findings.

The boy was discharged home with his parents about 2 hours and 45 minutes after arrival. His vital signs were not obtained prior to discharge. His parents were instructed to continue with oral rehydration and to return for medical attention if there were any "increasing signs or symptoms". The discharge diagnosis was viral gastroenteritis.

About 24 hours after discharge, the child's mother contacted 911. The paramedics documented that he was semi-conscious with gasping respirations. He appeared pale and thin with dry cracked lips, sunken eyes, tracheal tug and circumoral cyanosis. His parents reported that he had lost about 3.6 kg over the preceding two weeks. His temperature was 37.6 Celsius with a pulse of 174, and a respiratory rate of 40. His blood pressure could not be obtained. The blood glucose measurement (by glucometer) noted level was >33.3 mmol/l. His oxygen saturation was 55%. He was rapidly transferred to the same community hospital emergency department where he had been seen earlier.

After arrival at the hospital (30 minutes after paramedic arrival at the home), the child was immediately diagnosed with diabetic ketoacidosis with critical dehydration. His blood pressure continued to be unobtainable with a respiratory rate of 37 and a pulse of 148. After multiple unsuccessful attempts to obtain peripheral intravenous access, a paediatrician inserted an intra-osseous line about 20 minutes after the child's arrival in the emergency department. Normal saline was initiated at 300 ml/hour. Phenylephrine was provided and the child was intubated. Initial blood work was completed about one hour after arrival and noted: blood glucose 61.8, sodium 148, potassium 5.7, chloride 108, CO2 10, anion gap 30, creatinine 362, urea 23.2, pH 6.68, pCO2 91. He was provided with 500 ml of normal saline over the first two hours with a blood pressure of 40/21 obtained about one hour after arriving at the hospital. Additional treatment included: bicarbonate, insulin and additional inotropes (Dopamine, Epinephrine).

His condition was stabilized prior to transfer to a tertiary care teaching hospital where he was found to have multi-organ failure. His condition continued to deteriorate and a diagnosis of severe hypoxic ischemic brain injury was made. His death followed shortly thereafter.

Regional Supervising Coroner's Review

A post mortem examination demonstrated that his death resulted from hypoxic ischemic encephalopathy with multi-organ complications of shock secondary to diabetic ketoacidosis. Evaluation of the pancreas demonstrated findings consistent with type 1 diabetes.

Issues Identified by the Paediatric Death Review Committee

Issues identified by the Paediatric Death Review Committee included:

- The initial clinical evaluation at the community hospital did not appreciate that he had lost 25% of his body weight
- During the initial evaluation, the hydration status in a child at risk for fluid and electrolyte issues was not carefully documented (i.e. presence of tears, urine output, oral intake volumes, capillary refill, serial vital signs, blood pressure)
- In the absence of vital signs being completed prior to discharge on the first visit, it was unclear and unknown if he was discharged home in a dehydrated state. He had presented with vomiting, tachycardia and tachypnea, and a notation of vomiting while present at the hospital was documented
- The provision of fluids was delayed with less volume than indicated for his critical dehydration at the time of his second presentation

The Committee recommended a Regional Supervising Coroner's Review with the community emergency department staff to allow a case discussion focusing on the issues identified.

Regional Supervising Coroner's Reviews

Regional Supervising Coroner's Reviews have been conducted by the Office of the Chief Coroner for a number of years as an alternative to an Inquest where there appear to be specific areas that may be the focus of recommendations and in matters where the medical issues may be complex. The format of the meeting is much more informal than an Inquest. Hospital staff who were directly involved in the care of the deceased, appropriate administrative staff, the chief of the department, the hospital chief of staff and others, who the hospital deem to be appropriate, are invited to a meeting chaired by the Regional Supervising Coroner.

These meetings allow those involved in providing care to comment on the opinion of the Committee with respect to verifying or clarifying the events, if they are not accurately reflected in the medical record (as it is standard procedure that one of the primary sources of information for review is the medical record). It is not uncommon in the emergency room environment that charting may be less detailed, especially during treatment of a critical illness. It is also an opportunity for those at the meeting to receive the suggested recommendations and consider approaches for implementation.

These meetings are completed as part of the coroner's investigation and are therefore, subject to provisions in the Coroners Act of Ontario, i.e., legislative authority for investigation. In an effort to promote frank and open discussion, family members of the decedent are not invited to attend, nor are any legal representatives for the family or the hospital, participants in the meeting. No statements are taken, with notation limited to a list of those in attendance for the coroner's file, and recommendations that have been discussed and generally agreed upon. While meetings with the coroner may provoke some degree of anxiety among those requested to attend, those individuals invited are reminded that the meeting is for the coroner's investigative purposes only, namely; to clarify the facts and circumstances of the death, to assist with determining the cause and manner of death, and to determine if an inquest is necessary or unnecessary. In most situations, the cooperation and positive responses of the hospital assists greatly in finalizing the matter.

Regional Supervising Coroner's Review

Following the meeting, the Regional Supervising Coroner will confirm in writing any suggested recommendations and request formal consideration of these by the hospital and professional staff. It is the usual practice of the Office of the Chief Coroner to advise the family of the recommendations and the hospital's response to them, in due course.

The case presented was an excellent example, which illustrates the potential value of a Regional Supervising Coroner's Review. The issues identified were confined to one hospital department with an opportunity provided for clarification of the issues identified and reflective learning. By involving those who participated in the child's care, recommendations that are reasonable and practical, and enhance medical organizational effectiveness assist with the prevention of potential deaths in similar circumstances in the future.

PDRC Medical Case Review

Presentation at hospital of Asthma-like symptoms in an 8 year-old child

The following medical review was authored by the Paediatric Death Review Committee in 2007 and is being re-printed in this report in an effort to alert and educate the medical community.

An 8 year-old girl, who had exhibited no recent health concerns, developed upper respiratory tract symptoms consisting of a runny nose and a productive cough. Her younger sibling had the same symptoms. She was first seen at a local community hospital at around noon hour. She was treated with nebulized Ventolin and Atrovent as well as Racemic Epinephrine. Thereafter, she was transferred to a larger city hospital where she continued to receive this treatment including a dose of steroids. With continued deterioration, she was then transferred to a tertiary care hospital for further management and for possible admission. She had a history of childhood wheezing, which was treated with Salbutamol, and she had remained asymptomatic since then. The last admission for query? asthma was at the age of 3 or 4 years. Her immunizations were up to date and she was an otherwise healthy girl. There was no family history of asthma. There were multiple smokers in the family and a cat in the house.

The child was brought to the tertiary care hospital at 1740 hrs and upon arrival she looked relatively well, was saturating over 95% in 35% oxygen. Her respiratory rate was 26, her pulse was 156, and her blood pressure was 120/80. She had mild increased work of breathing with decreased air entry on the right side and diffuse wheezing and crackles heard throughout the chest. Cardiovascular examination was normal. Her voice was hoarse. She had no lymphadenopathy. Her face looked plethoric with some flushing. Her mucous membranes were moist. Her abdomen was soft. A chest x-ray showed diffuse increased interstitial opacities, consistent with reactive airway disease (RAD). Her white blood count (WBC) was 5000 with 60% neutrophils and electrolytes were normal. Blood gases showed pH of 7.36, pCO_2 of 39, PO_2 of 102, bicarbonate of 22 in high concentration of oxygen. The initial impression was that she had an exacerbation of asthma likely triggered by a viral infection. She appeared to be responding to a bronchodilator as well as steroids. She was admitted to the hospital's Step-down Paediatric Unit. She was continued on bronchodilators (Salbutamol and Atrovent), steroids and oxygen. Antibiotics were discontinued as the infection was felt to be due to a viral infection. Her course in the hospital over the next 4 days in the Step-Down Unit was one of gradual improvement. Her requirement of Salbutamol initially, Q1 hr, with Q30 min as needed (prn), was reduced to Q2 hrs – Q4 hrs. The Atrovent was discontinued, but steroids were continued. She required several boluses of fluid and she remained on IV fluid with only minimal oral intake. She appeared to be voiding well. She developed some petechial rash on her face the following day, which was felt to be due to excessive coughing. She also developed a sore throat, but a throat culture was negative for group A Streptococcus. Blood cultures were also drawn and the results were negative. Serology results for Mycoplasma also came back negative.

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On the 4th day of her hospital stay, she was transferred to the ward. The diagnosis remained reactive airway disease, and the patient initially was thought to be in severe respiratory distress, but had responded to aggressive therapy and was on the mend. None of the investigations revealed anything unusual, the blood gases had improved, and no follow-up chest x-ray was done. She was felt to be satisfactory prior to transfer to the ward. Her vital signs at the time of transfer were: heart rate of 130, respiratory rate at 28 breaths/minute, saturation was 93% in room air and oxygen therapy was discontinued. She was afebrile (36.5 °C) and was able to ambulate. However, it had been noted that she was anxious throughout and remained somewhat tachypneic.

On the day of her transfer to the ward, the transfer order was written at 1322 hrs and a detailed transfer note was written by a clinical clerk. However, no physician's note had been written by the receiving team until she had decompensated. The nursing note stated that at approximately 1600 hrs on the date of transfer, decreased air entry was noted throughout the chest with scattered crackles, respiratory and expiratory wheezes to both upper and lower lobes on the right side. Mild nasal flaring was noted and as well, she had increased work of breathing. Ventolin was given with some improvement, but the patient still had decreased air entry to the right side. At 1710 hrs the child's respiratory rate had gone up to 40; she was having abdominal breathing. She was distressed and seemed restless. Again, on auscultation, wheezing was noted as well as crackles. She continued to receive Ventolin with minimal improvement. Oxygen requirement increased. The patient was assessed by the Paediatric Intensive Care Unit (PICU) resident at 2030 hrs that evening. The resident noted that she had increasing respiratory distress, decreased urine output and was quite anxious, and the patient felt that she was unable to catch her breath. Her respiratory rate was 45 breaths/minute, saturation was 95% on 28% oxygen, decreased air entry was present to her lung bases and expiratory wheezing was noted in both upper lobes. There was tracheal tug present, and abdominal breathing was noted. The patient's Ventolin was increased at that stage and a chest x-ray and blood gases were done. The case was discussed with the PICU attending physician on call and the decision was made to transfer the patient back to the Step-down Unit, which occurred at approximately 2230 hrs. The resident discussed the case with the PICU attending physician at approximately 2300 hrs, referencing the lab results and the chest x-ray and expressed concerns that some other process other than asthma was occurring as the patient was not improving on continuous Ventolin. The girl was anxious as well, and the resident questioned the possibility of bacterial or atypical pneumonia, or bronchiolitis obliterans organizing pneumonia (BOOP); and, also informed the attending physician that the urine output had diminished to 0.5 ml/kg/hr despite two boluses of fluid, 500ml each. Her FiO_2 was increased to 40%. The blood gases at this stage showed a pH of 7.37, CO_2 of 36, and a bicarbonate of 20. Due to continued anxiety, after further discussion with the PICU attending, 1mg of midazolam was given and upon advice of the attending physician a continuous positive airway pressure (CPAP) trial followed by bi-level positive airway pressure (BiPAP) trial was given with little to no improvement. The blood gases done at 0130 hrs showed a marked deterioration with a pH of 7.23, a bicarbonate of 20, base excess -7, and CO_2 of 51. At approxi-

PDRC Medical Case Review
Presentation at hospital of Asthma-like symptoms in an 8 year-old child

mately 0400 hrs, the child started to have a fluctuating level of consciousness and a code was called. A consultant from the Anesthesia Department attended this code and a decision was made to intubate her with the use of Ketamine and Midazolam. The patient was intubated successfully on the first attempt, although there was some vomitus noted in the mouth. She was transferred from the Step-down Unit to the PICU. Her antibiotics were changed to broad-spectrum antibiotics and Midazolam infusions were started. Despite being on the ventilator, she started to deteriorate quite rapidly, and required up to 100% oxygen with saturation descending into the 80's range. She was given a trial of nitrous oxide. She became profoundly hypotensive, despite the administration of multiple fluid boluses, Dopamine and Norepinephrine. Arterial gases started to deteriorate showing severe respiratory as well as metabolic acidosis. Over the next 2 hours, appropriate aggressive resuscitative measures were carried out, however, the child continued to decompensate and started having arrhythmias and became bradycardic and progressed to asystole. After 20 minutes of resuscitation, all resuscitation efforts were discontinued. The time of death was 0939 hrs. The impression of the staff attending physician was that this girl died of ARDS (Acute Respiratory Distress Syndrome) and myocardial failure.

The autopsy showed extensive evidence of acute bilateral bronchopneumonia, both of viral and bacterial etiology. Lung cultures were positive for Staphylococcus aureus. There was acute, severe bronchitis with bilateral pleural effusion, 200 cc on the right and 150 cc on the left. There was evidence of viral myocarditis as well, with a pericardial effusion of 100 cc. There was reactive lymphadenitis and evidence of acute cerebral edema likely reflecting hypoxic ischemic changes in the terminal phase. Overall, it was felt the cause of death was acute bronchopneumonia of both viral and bacterial etiology, and viral myocarditis. In addition to the above findings, the PDRC review of the pathology also suggested the possibilities of hemophagocytic lymphohistiocytosis as an underlying cause of the child's apparent polymicrobial infections. This was based on the findings of a pattern of lymphadenopathy with CD3 positive T-cell prominence along with erythrophagocytosis, hepatomegaly and splenomegaly.

The PDRC review concluded that this previously healthy, 8 year-old girl had reactive airway disease (RAD), which may have been triggered by viral infection, but developed viral myocarditis, as well as secondary bacterial pneumonia. Though the initial course was consistent with the diagnosis of RAD, subsequent decompensation should have alerted the team of other possible complications, which can occur in individuals who are recovering from acute viral pneumonia, such as secondary bacterial pneumonia, ARDS, SIRS (systemic inflammatory response syndrome) and MOSF (multi-organ system failure). The third year resident on call that night entertained other possibilities, but the finding of cardiomegaly was not appreciated on chest x-ray and no ECHO was requested or done.

Although the child was felt to be stable and was on room air prior to being discharged from the Step-Down Unit, she deteriorated soon after arriving on the ward raising the possibilities that things were not going well before the

PDRC Medical Case Review

indicated that she continued to exhibit acute anxiety and a certain degree of increased work of breathing.

It appears the resident (R3) responded appropriately to the patient's symptoms and did receive advice from the attending physician on call over the phone, but it does not appear that the staff attending physician actually arrived in the building until it was too late. The patient's clinical status continued to deteriorate during the night. The staff attending physician's involvement was limited in this case. In a complex patient like this, it is expected that an attending physician should be present to assist with management. The patient was intubated with the help of the Anesthesia Department, which was an appropriate intervention and the appropriate drugs were used. However, the PICU attending physician had not arrived at the hospital at that time.

Regarding the management of this case, based on autopsy findings, it appears that this 8 year-old girl had myocarditis, but at no time was this possibility entertained prior to death. The only indication one would have had was the presence of cardiomegaly in one of the chest x-rays. It is conceivable that the early presentation was consistent with reactive airway disease, but once she did not respond in a satisfactory manner, other possibilities should have been explored.

Comments/Recommendations

1. Staff level supervision was lacking in this patient during the night when she de-compensated.
2. If a patient with a working diagnosis (i.e. RAD) is not responding to conventional therapy, one needs to broaden the differential diagnosis.

Note: The PDRC requested to review the Hospital's Internal Review of this case, however the hospital was unable to share the report as it is protected under the Quality of Care Information Protection Act (QCIPA), but did share the recommendations of the review, which consisted of:

(1) Staff education relating to patients with asthma and ARDS;

(2) Policies and procedures related to resident supervision were reviewed with attending physicians with a specific focus on when the attending should return to the hospital to assess the patient in person; and,

(3) Guidelines were provided to residents as to how to seek support when on call and if they have concerns regarding the supervision given to them by the attending physician.

The PDRC supported the recommendations made by the Hospital.

Medical Case Reviews: THEMES

Since its inception in 1991, the Paediatric Death Review Committee has compiled a number of common themes that have recurred in the review of children's deaths. Our reviews echo the findings of an increasing volume of literature on errors in medicine, which suggests that tragedies rarely result from a single fatal error or flaw and are more likely to arise from a series of latent flaws in both systems and in performance. The occurrence of multiple imperfections is frequently synergistic. Latent flaws, which may appear quite basic, but are seen repeatedly by the Committee include:

- Failure to ***listen*** to repeated parental concerns, particularly in the child who returns without having responded to initial medical management
- Failure to record or review ***vital signs***, particularly blood pressure – ***VITAL SIGNS ARE VITAL!!!!***
- Failure to make a semi-quantitative assessment of ***fluid intake and output***, particularly in the child with vomiting and diarrhea (e.g. number of loose stools, wet diapers etc)
- Where lab tests are ordered, particularly in an emergency department, it is essential that the results of these tests be known ***before a decision is made regarding further treatment***
- ***Illegible or sloppy handwriting***, which is misinterpreted by others
- Failure to record ***thought processes***, or the reasons behind certain actions – the more badly things are going, the more important charting becomes (and the less likely complete charting is to be found)
- Failure to record ***weight*** or to use ***growth charts***
- Failure to include not only the ***date***, but the ***time*** of a chart entry
- Failure to ***follow-up on missed appointments***, especially for the "non-compliant parent and non-responsive patient"
- Failure of an institution to ***meet with the parents*** after a death to discuss and review the care provided. Not infrequently, such a failure has led to a physician not only being regarded as heartless, but as having something to hide, which may result in parents pushing for inquests where a less adversarial process may have been more helpful
- Refusal to ***accept alternative explanations*** after the event, even after review by third parties

The PDRC reviewed 18 medical cases in 2007 and many of these themes continue to recur. The preeminent theme revealed in 2007 was clearly, "failure to record or review ***vital signs*** particularly blood pressure". 9 (50%) of 18 cases, were determined to exhibit issues of vital sign recording and/or analysis.

"Refusal to ***accept alternative explanations*** after the event" or the refusal to initiate a differential diagnosis was the second most prominent theme, occurring in 5 (28%) of the 18 cases.

Rounding out the top three themes for 2007, 3 (17%) of the 18 cases correlated with, "where lab tests are ordered, particularly in an emergency department , it is essential that the results of these tests be known ***before a decision is made regarding further treatment.***

See articles on pages 36–38, 39–42, 45–49 for sample medical case reviews associated with these themes.

PDRC Medical Reviews: Themes and Recommendations

Process

In 2007, the PDRC reviewed 18 medical cases, and in 17 of these cases a written report was authored by the PDRC. Those children reviewed have often died from complex medical causes, and commonly in hospital settings. Typically, their medical management was extremely difficult in the waning moments of their lives. A finding common to the cases reviewed was the involvement of challenging medical management issues in the time prior to death.

The process for medical case review begins with referral from a Regional Supervising Coroner to the Chair of the PDRC. The paediatric medical expert who will undertake primary review is selected from the committee based upon their individual experience (often expertise) in management of children with the disease states involved and their practice type, i.e. community or tertiary care practice. The review process is a paper review of the existing record and routinely includes all pertinent medical records, the Coroner's Investigation Statement, the post mortem report, and other relevant documents as necessary. Occasionally, the expert will directly review the diagnostic imaging or other studies. The primary reviewer produces a report, which is then presented during one of the monthly meetings to the other medical members of the Committee. After thorough case discussion, a consensus position is achieved, and recommendations are developed as indicated. The final report is then forwarded to the referring Regional Supervising Coroner upon approval of the Chair.

Adverse Events (AE) in Canadian Hospitals

When a child dies while receiving medical care, the death could occur: following deterioration of an underlying medical condition, an adverse event, or a combination of both.

An adverse event is an event that results in unintended harm to the patient, and is related to the care and/or services provided to the patient rather than to the patient's underlying medical condition. In 2004, Baker and Norton published ***The Canadian Adverse Events Study; the incidence of adverse events among hospital patients in Canada***. The results of the study had a profound effect on the Canadian medical community:

"Our study showed that an estimated 7.5% of patients admitted to acute care hospitals in Canada in the fiscal year 2000 experienced 1 or more AEs. We found that 36.9% of these patients were judged to have highly preventable AEs. Most of the patients who experienced an AE recovered without permanent disability; their AEs contributed to longer stays in hospital or temporary disability. However, a small but significant proportion of patients died or experienced a permanent disability as a result of their AEs. By extrapolation, our results suggest that, in 2000, between 141 250 and 232 250 of 2.5 million similar admissions to acute care hospitals in Canada were associated with an AE and that 9250 to 23 750 deaths from AEs could have been prevented".

Adverse events can arise from:

- the inherent risks of **investigations or treatments**
- a **system failure** within health care
- a health care **provider performance** issue
- a combination of these

Investigations and treatments have inherent risks. This is the most common type of adverse event, and is unexpected by the patient. These are generally independent of who is providing the care. **System failures** within health care are represented by the lack of, malfunction or failure of policies, operational processes or the supporting infrastructure for the provision of health care. **A provider performance** issue is usually represented by a gap in knowledge or skills, a departure from a clearly written policy, poor clinical performance because of health, or extremely rarely, malicious patient harm (CMPA, 2008).

PDRC Medical Reviews: Themes and Recommendations

Purpose of the medical case review

Expert medical case reviews are undertaken to clarify medical issues surrounding the death to ensure that the Regional Supervising Coroner has complete understanding of the circumstances of the death. Cause and manner of death are provided, and themes, which emerge from the chart reviews, are identified. Committee case discussion allows recognition of themes that are recurrent over time. The outcome of review often leads to recommendation for a health care organization to:

- conduct an educational meeting with case specific focus to inform health care providers of the historical facts and medical issues identified
- review the death through a Quality of Care Review process, allowing the health care organization to develop internal policies and processes to avoid a similar outcome in the future
- participate in a Regional Supervising Coroner's Review, (see article, page 36)
- review the health care provider's performance in the interests of patient safety

On occasion, the medical case review may identify issues that lead the Committee to make a recommendation to the Chief Coroner of Ontario to refer a health care provider to a regulatory body as defined by the Regulated Health Professions Act.

PDRC Medical Reviews: 2007

The following 5 case examples provide a cross-section representative of the 18 medical cases reviewed by the Committee in 2007.

Case #1

History

This obese 8 year-old male had a history of asthma and possible obstructive sleep apnea. Many different care providers assessed him prior to his admission from an emergency department after he turned blue when he fell asleep while in the waiting room. He was admitted to the intensive care unit (ICU), and he underwent a tonsillectomy and adenoidectomy (T&A). The surgery went well, and the post-op course in the ICU was uneventful until day 2, when he developed a high unrelenting fever with deterioration in his condition. Morexella Catarrhalis was cultured from his airway and despite antibiotic therapy, fluid and vasopressor support, his high fever persisted. He developed progressive hypotension and death ensued.

Cause of death: Multi-organ failure due to severe hyperthermia due to probable sepsis in a post tonsillectomy child with biventricular hypertrophy and obstructive sleep apnea.

Contributing factors: Pulmonary hypertension and obesity. The autopsy findings in the lungs supported the clinical diagnosis of obstructive sleep apnea of considerable duration.

Manner of death: Natural

Themes

1. Although sleep apnea was first considered in 2002, a sleep study was never performed.
2. The care team's management plan in his terminal event was considered appropriate.

Recommendations

1. The PDRC recommended that the Regional Supervising Coroner review the outcome of this case with all of the physicians involved, stressing the need for sleep studies in children with like medical histories.

PDRC Medical Reviews: Themes and Recommendations

Case #2

History

This 15 year-old child died of complications of cystic fibrosis at a tertiary care centre. He had been transferred from a community hospital with shortness of breath, ascites and pulmonary edema. A review of outpatient pharmacy records as well as medical records, revealed that few of the standard medications used to treat cystic fibrosis prescribed had been obtained in the two years preceding death, and medical appointments were often "no shows". The ICU physicians at the tertiary care centre were concerned about the severity of his lung disease, state of malnutrition and lack of compliance with scheduled clinic visits. As a result, the family was informed that the care providers had an obligation to report this child's death to the Children's Aid Society (CAS).

Cause of death: Complications of cystic fibrosis.

Manner: Natural

Themes

1. The premature death of this child due to cystic fibrosis was potentially preventable. The current median age of survival in 2006 is 36.8 years. Patients are best served in multi-disciplinary cystic fibrosis clinics where standard therapies are provided.
2. Substandard compliance of attendance at cystic fibrosis clinics should be followed up by the clinics themselves.
3. Social workers need to be involved in cystic fibrosis clinics, particularly where care appears to be fragmenting due to switching of clinics, doctors, or for social or economic reasons.
4. Compliance with respect to prescribed therapies, medications and treatments are necessary to abate disease progression and prevent sequelae such as malnutrition or respiratory failure.
5. The education of parents to ensure a consistent, standardized, regimented approach to the care of a child with cystic fibrosis should be emphasized.

Recommendations

1. The cystic fibrosis clinics involved need to perform quality of care reviews of this case. They should as well, develop a systems approach to dealing with non-compliant families and patients such that the child/youth does not "fall through the cracks". This systems approach should document communication attempts and missed appointments. Where attempts at engaging families in complying with appropriate care plans fail, involvement of the CAS should be initiated.
2. Cystic fibrosis clinics should have an association with a social worker as part of their staff make up. The social work notes should be documented within the clinic chart notes.
3. An internal review should occur with respect to the quality of care received via the cystic fibrosis clinic. A protocol should be established to determine that when lack of compliance becomes a concerning issue in the care plan, and a referral to CAS ought to be actuated.

Case #3

History

A 14-year-old child, with a long history of depression and suicidal ideation, died by hanging. She had been followed by her family physician and a school nurse. She demonstrated self-cutting behaviour in early 2006 with initiation of Paxil. One month later, she attempted to hang herself, but the ligature broke. She attended a community hospital emergency department, where she was transferred to a tertiary care centre. She was admitted for one week in a Child and Adolescent Unit. Her Paxil was discontinued and Prozac was prescribed. Upon discharge, she was referred for counselling at an adolescent behaviour counselling group. One month following her discharge, she was admitted to hospital on a Form 1 after being assessed by a physician following a suicide attempt two days before.

PDRC Medical Reviews: Themes and Recommendations

Over the months between this admission and her death there were multiple contacts with hospitals and health care providers as well as a number of suicide attempts.

Cause of death: Hanging

Manner of death: Suicide

Themes

1. Access to mental health services for children and adolescents is limited. In small communities, it is non-existent.
2. There is often no access to child and adolescent psychiatric beds.
3. Hospitals caring for psychiatric patients rarely have dedicated paediatric psychiatry beds.
4. Psychiatric services offered to paediatric patients are generally outpatient services. It was difficult to keep this child safe out of hospital.

Recommendations

1. The Regional Supervising Coroner responsible should meet with the child and adolescent health care team to determine if the problems identified in this death are ongoing.
2. If these problems continue to be ongoing, then they should be reported to the Chair of the Paediatric Death Review Committee (PDRC).

Case #4

History

A 17 year-old boy presented to a community hospital emergency department with a complaint of constipation and feeling unwell for 4 days. His temperature was 35.2 C, pulse 150, blood pressure 83/49. He was given a bolus of saline, and an enema for constipation with good results. Blood work showed pancytopenia, with a hemoglobin of 69, platelets of 24, and a white blood cell count of 0.5. Referral to a tertiary care centre was made and the emergency physician completed a Form 1 under the Mental Health Act to compel the patient to comply with the treatment plan. He was transported in an ambulance from the community hospital some 6 hours after arrival to the tertiary care centre. Upon arrival, he was noted to be hemodynamically unstable with an altered level of consciousness. He was intubated, given steroids, antibiotics and inotropes before expiring, approximately 5 hours after his arrival.

Cause of death: Septic shock due to E. coli sepsis.

Manner: Natural

Themes

1. His septic shock status appears to have not been appreciated by the emergency room staff despite his vital signs.
2. The pancytopenia was not treated once discovered.
3. He was transported in the ambulance with basic life support only. This suggests an under appreciation for the degree of his illness. Critical care paramedics were not utilized for the transport.
4. Once he arrived at the tertiary care centre, he was moribund, severely decompensated and could not be resuscitated.

Recommendations

1. The community hospital should conduct an internal Quality of Care Review of this case.

PDRC Medical Reviews: Themes and Recommendations

2. The Quality of Care Review should consider the following issues:
    a. Vital signs which may indicate critical illness and incipient death.
    b. The signs and symptoms of septic shock.
    c. The incorporation of vital signs into CTAS scoring by triage nurses.
    d. Appropriate nursing and physician actions based on the CTAS scores.
    e. Pancytopenia and its complications for provision of enemas as a treatment option.
    f. The indications to use a Form 1 for refusal of treatment or care.
3. The community hospital should share its recommendations, including plans for implementation with the Regional Supervising Coroner.

Case # 5

History

A 3 year-old previously healthy child was brought to a community hospital emergency department with a 24 hour history of vomiting and diarrhea. She was treated with 2 boluses of normal saline, before being admitted. She was then provided intravenous fluid composed of 0.3 NaCl and 3.3% dextrose (2/3's 1/3) at 120 ml/hr. Her sodium was 141, potassium 4.3, BUN 9.6 mmol/L and creatinine 33 µmol/L. She was admitted at 22:30 hours. The following day at about 13:00 hours, she was described as "rigid". Her sodium had fallen to 119 mmol/L. She began seizing, and despite aggressive attempts at resuscitation, she expired at 17:20 hours.

Cause of death: Cerebral edema due to acute hyponatremia. Autopsy demonstrated rotavirus in the small bowel.

Manner of death: Natural

Themes

1. Hypotonic saline solution can result in acute hyponatremia, which may lead to cerebral edema and death.
2. The PDRC has reviewed several similar cases over the years.

Recommendations

1. A letter should be sent, addressed to Mr. George Smitherman, Minister of Health for Ontario, seeking his Ministry's help in alerting physicians to this problem.
2. A letter should be sent, addressed to the Canadian Medical Protective Association (CMPA) on the same topic.
3. An article on the topic should be submitted to the Canadian Medical Association Journal (CMAJ). There have been preliminary discussions along these lines with the editor of the journal.
4. A Quality of Care Review should be conducted by the community hospital.
5. A letter should be sent to Safer Health Care Now! and the Canadian Council of Health Service Accreditation (CCHSA) alerting them to this issue and seeking their assistance in educating health care organizations and practitioners. (A meeting will be convened in Toronto on June 10, 2008 with representatives from identified parties to develop an approach to educating health care providers regarding the risks of hypotonic solution induced hyponatremia).

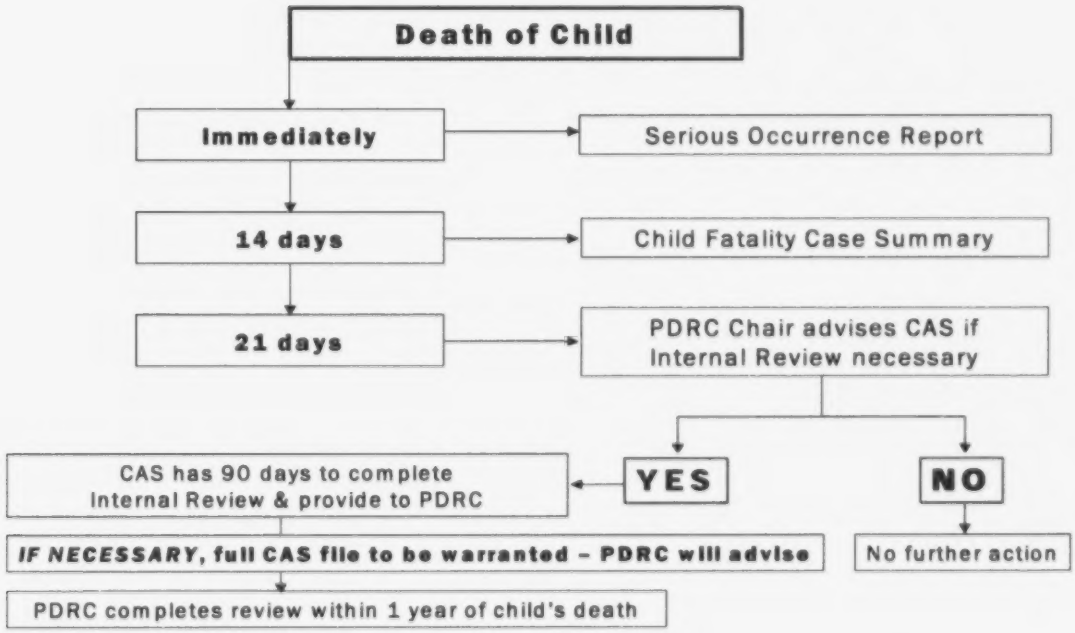
Joint Directive for Reporting and Reviewing Child Deaths in the Province of Ontario

Joint Directive for Child Death Reporting and Review – A Collaboration Agreement between the Office of the Chief Coroner (PDRC) and the Ministry of Children and Youth Services

Background: In Ontario, the Paediatric Death Review Committee (PDRC) was formed by the Office of the Chief Coroner (OCC) in 1991 to assist coroners with complex medical cases. In 1997 as a result of the Joint Child Mortality Task Force and recommendations from inquests on child deaths where the families had been receiving service from the child protection system, the role and membership of the committee was expanded. Experts from the child welfare field, police services and the crown attorney's office were invited to assist the Coroner's office in the regular review of deaths of children involved with a children's aid society. In 1999 a joint directive was developed between the Office of the Chief Coroner and the responsible provincial children's ministry (Ministry of Community and Social Services and more recently, the Ministry of Children and Youth Services) to guide the process of child death reviews; this directive was revised in March 2006.

Working in collaboration for the past two years under a Memorandum of Understanding, the PDRC, with funding support from the Child Welfare Secretariat (CWS) of the Ministry of Children and Youth Services (MCYS), has assumed the lead in the implementation of the Joint Directive which guides the process and established timelines for the reporting and reviewing of all children's deaths in Ontario where a children's aid society had involvement with the family in the preceding 12 months. A Child Welfare Specialist was hired to help implement this directive and to coordinate the reporting process and the PDRC reviews of child welfare reported cases. The tracking and analysis of the relevant data, themes, trends and recommendations is expected to be centralized, streamlined and disseminated in an annual report. This is the second annual report arising out of this new collaboration.

The MCYS, with assistance from its regional offices and Quality Assurance and Accountability Branch, has responsibility for a public report card regarding the recommendations made by the PDRC in the child deaths reviewed. This response is meant to provide an update on the implementation of recommendations made to children's aid societies and the MCYS during the reporting year. Reporting and Reviewing timelines are outlined in the table below:


Death of Child
Immediately
Serious Occurrence Report
14 days
Child Fatality Case Summary
21 days
PDRC Chair advises CAS if Internal Review necessary
YES
NO
CAS has 90 days to complete Internal Review & provide to PDRC
IF NECESSARY, full CAS file to be warranted – PDRC will advise
No further action
PDRC completes review within 1 year of child's death

"Deliverables" provided by the PDRC under the Memorandum of Understanding 2006-07

Products and Services provided:

- Ongoing liaison between the OCC and Children's Aid Societies (for clarification of issues as they arise, sharing of information related to individual child deaths and/or the reporting and reviewing process).
- Provision of procedural direction and support to regional and head office (OCC) staff with respect to child welfare death investigations.
- Implementation and ongoing coordination of reporting and reviewing processes as per the Joint Directive of March 2006 (managing flow of information and timelines).
- Development of tracking tools to assist in the collection of relevant data and information related to the joint directive and timelines.
- Monthly coordination of CAS reviews and Child Welfare Reviewers for the Paediatric Death Review Committee and the Deaths Under 5 Committee and organization of these meetings.
- Development and maintenance of internal database for CAS child death cases.
- Statistical and data analysis of CAS child deaths, tracking and reporting of identified trends, issues, and recommendations.
- Production, dissemination and presentation of the Annual Reports and findings.
- Development and delivery of training for CASs on investigating and reporting child deaths in Ontario.
- Provision of input into the OACAS training curriculum for High Risk Infants.
- Regular participation in case conferences and forensic rounds related to child welfare deaths.
- Identification and response to policy implications and issues related to the investigation, reporting and reviewing of child welfare paediatric deaths.
- Development of tools to assist the child welfare field in the investigation, reporting and reviewing of child welfare deaths, including conducting internal child death reviews.
- Participation and input provided to the Domestic Violence Death Review Committee on deaths of children where CAS was involved.
- Regular distribution of individual PDRC reports to MCYS — Child Welfare Secretariat, Assistant Deputy Minister and Regional Directors, the CAS and the Regional Supervising Coroner.
- Attendance at meetings with CWS staff to discuss trends, recommendations, roles and responsibilities.
- Communication with CWS regarding child welfare legislation, policies, standards, generally and specifically related to child deaths/reviews.

Outcomes/Benefits Since the Implementation of the Joint Directive

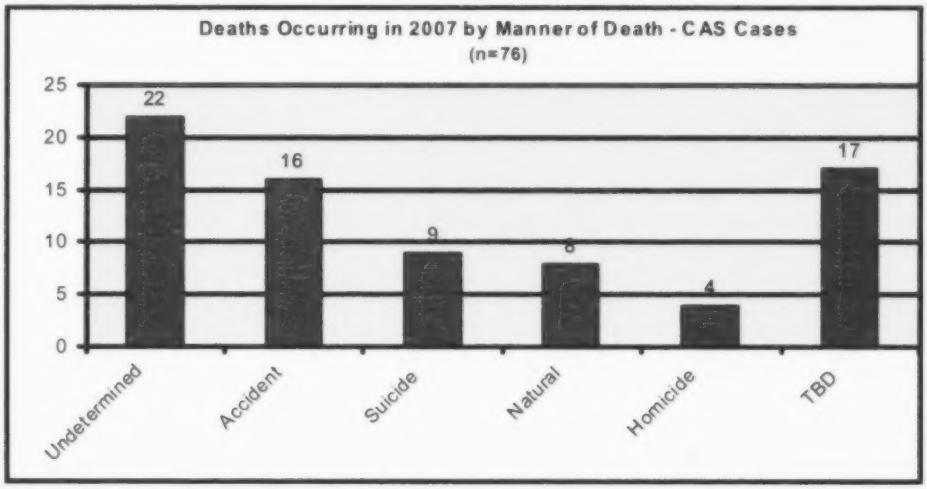
Through the Joint Directive and Memorandum of Understanding, much headway has been made in streamlining the reporting, reviewing and analysis of children's deaths. Public awareness and prevention strategies have been developed and improved. The PDRC has been able to organize and enhance procedures to allow cases to be reviewed in a more timely manner. Feedback and recommendations are being provided to agencies quicker and Societies are doing a better job on internal reviews, which allows for learning and change from identified weaknesses in order to strengthen service and supports for families and children. Response from the public, the child welfare field, coroners, PDRC members, and ministry representatives has been overwhelmingly positive.

- The PDRC has more than doubled the number of cases reviewed annually in the past 2 years.
- Fewer warrants are being issued for entire CAS files.
- Fewer full PDRC reviews are required due to earlier screening of cases allowing for most critical cases to be prepared for review sooner.
- Improved understanding and attitude within the field about blame free analysis in reviewing child deaths.
- Enhanced capacity for Society Internal Child Death Reviews which leads to enhanced learning and more meaningful and timely implementation of recommendations for prevention of future child deaths.
- PDRC has cleared a backlog of 2004-2005 cases to be reviewed.
- Broader distribution of PDRC reports and recommendations and the production and distribution of an annual report, which enhances accountability and public confidence.
- Accurate tracking of statistics, trends, themes on an ongoing and regular basis.
- Implementation and monitoring of timelines and processes leading to improved accountability on the part of OCC and MCYS in meeting deadlines for reporting and reviewing cases.
- Improved public and professional understanding of challenges, roles, responsibilities and mandates for both OCC and CAS.
- Enhanced education for the public, media and other systems regarding trends, realities and prevention strategies.

Deaths Occurring and Reported by a Children's Aid Society in 2007

90 deaths were reported to the PDRC by Children's Aid Societies (CAS) during 2007. 14 of these deaths were determined not to be coroner's cases given the circumstances of the child's health condition and death due to natural causes. Therefore, no further review occurred on these 14 cases.

Of the **76** remaining cases, internal reviews have been requested in 37; these deaths will be referred to the PDRC for review and report over the next 12 months. More detailed analysis of these deaths will occur in the year of review. Preliminary data on the **76** coroner's cases involving a CAS suggests the following:

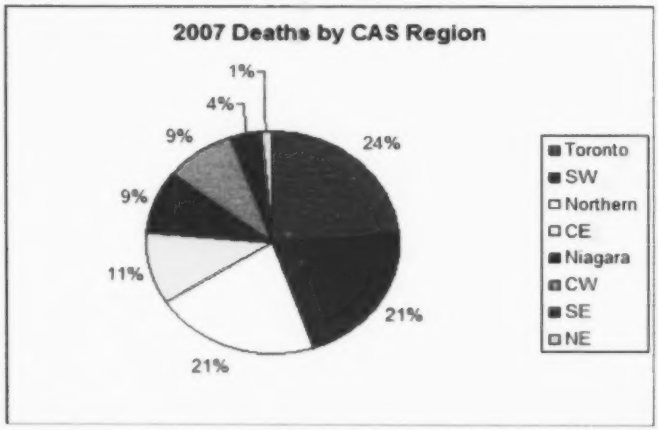


Note: 17 deaths are still under investigation, including test results, therefore the manner of death is TBD (to be determined)

Due to the volume of cases and the length of time required for a complete coroner's investigation, including various test results and reports, most fatalities cannot be reviewed in the same year of death. Additionally, cases before the criminal courts are generally not reviewed until any outstanding charges are resolved.

Deaths in 2007 by region (MCYS)

Deaths occurred across Ontario. The Ministry of Children and Youth Services (MCYS) is divided into 9 regional areas that oversee 53 Children's Aid Societies. This is a breakdown, by MCYS regions, of the 76 deaths investigated by a coroner and reported to the PDRC by a CAS:

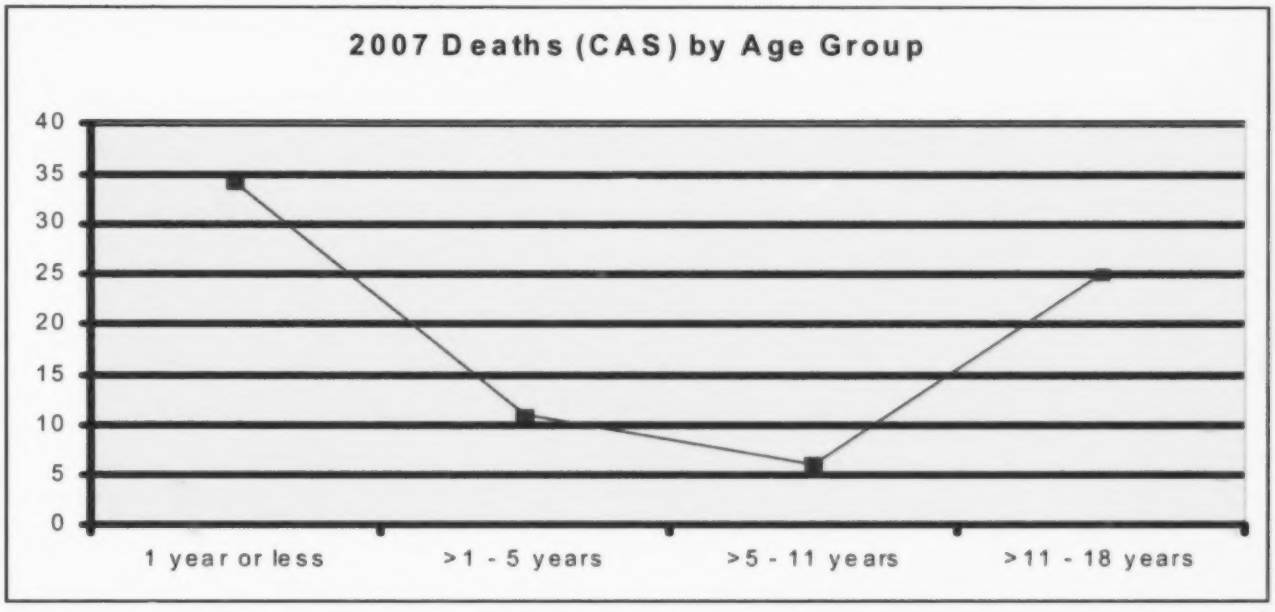


Toronto	18
SW	16
Northern	16
CE	8
Niagara	7
CW	7
SE	3
NE	1
Eastern	0
Total	**76**

Deaths Occurring and Reported by a Children's Aid Society in 2007

Gender and Age:

- 35 (46%) Female; 41 (54%) Male
- Ages ranged from 1 day to 18 years
- 45 (59%) of the deaths were children 5 years of age and under
- 34 (75%) of those children were 1 year old or younger (45 % of the total deaths)
- 27 of these infants were 6 months old or younger (35% of the total deaths)
- 6 children were 5 years up to 11 years of age
- 24 (32%) of the youths were between 12 and 18
- **Clearly the most vulnerable age for paediatric deaths is under 12 months and between 12-18 years of age**
- The majority of infant deaths under one year of age involved concerns about unsafe sleeping environments. 14 (41%) were between 2 weeks and 8 months of age and known to be bed sharing with at least one adult.
- The majority of deaths between 12 and 18 years of age were the result of suicide (33%) and accident (33%), usually drowning or motor vehicle collisions.
- These numbers may be higher once all death investigations are concluded for 2007.



PDRC Reviews of Cases with Children's Aid Society Involvement

While the PDRC cannot assign blame, it does review cases from the position of prevention. One of the roles of the PDRC is to make recommendations to prevent deaths in similar circumstances. For example, these questions are considered: Could this child's death have been prevented? Could similar child deaths in the future be prevented? If so, how?

All child deaths are tragic and are usually the result of various factors; occasionally the actions or inactions by those in a care-giving role (parents and or/systems) play a part in the circumstances leading up to a fatality. The PDRC reviews these circumstances and makes recommendations for consideration by the Child Welfare system and others with a goal to prevent further child fatalities.

Recognizing the committee has the benefit of hindsight in conducting its assessment of agency practices, it is helpful to bear in mind the following questions posed by Dr. Peter Markesteyn (from the Turner Review and Investigation September 2006):

What did they know at the time of the events?
What could they have known, but didn't when those events occurred?
Based on what they then knew or could have known were their decisions appropriate?

The Committee acknowledges the difficult work of Children's Aid Societies in protecting children from harm.

According to the Ontario Association of Children's Aid Societies, there are approximately 19,000 children in the care of a CAS; 9000 are Crown Wards. Children's Aid Societies completed **81,829 investigations** and there were, on average, **26,260 open protection cases** in 2006-2007 (from www.oacas.org). The number of child deaths during this time frame clearly represents a very small percentage of the volume of children and families involved in the child welfare system.

There are occasions during retrospective reviews, where concerns are identified with the decision-making, management of cases or the provision of child protection services to families and children.

Many children's deaths are preventable; it is particularly concerning when a child dies needlessly and contributing factors include the service they have or have not received by a child protection agency. Two specific cases are highlighted here where the committee believed that different decisions might have resulted in different outcomes for a child. Each of the agencies involved completed internal child death reviews and recognized that changes in service, policy and training were warranted. Even within a differential response model, more intrusive action by a Society is called for in certain circumstances; the children in these cases may have benefited from such intervention.

Case Summary #1:

A 4-week -old infant, born to young parents who had both spent considerable time in foster care as youths, died while on a visit with relatives. She was put to bed on her tummy on top of an adult pillow, covered with a blanket and placed in a playpen where she was found dead the next morning.

The PDRC had concerns that the child had remained in the care of the parents without more intrusive action by the Society. Both parents smoked and the mother used drugs throughout the pregnancy. The baby was born prematurely and was kept in hospital for the first two weeks. The parents' issues including mental health concerns, smoking, substance abuse, domestic abuse, poor decision-making and unsuitable home conditions were known to the Society.

The parents refused to sign a voluntary service agreement, the agency eventually decided to proceed to court. However, this did not happen prior to the child's death. Given the nature and pattern of the concerns, it is difficult to understand the length of time the Society took to consider proceeding to court for a protection application.

While the CAS had no part in where the child was staying when she died, they did acknowledge in their internal review that several best practice guidelines were not followed, that the risk was understated at the investigative stage and the case should have proceeded to court earlier.

PDRC Reviews of Cases with Children's Aid Society Involvement

Case Summary #2:

A six-week-old infant died bed-sharing with his mother who had an extensive history of child welfare involvement. Prior to this child's birth, his parents had been the subject of eight previous investigations involving allegations of parental substance abuse, neglect of the older siblings, domestic violence, concerns about inadequate supervision and hazardous home conditions. Because of his mother's drug use, he was born addicted to methadone, received morphine treatment, and after several weeks in hospital he was discharged to the care of his mother. The Society remained involved on a voluntary basis with the family to monitor the care of this child and his siblings despite the family's pattern of not responding well to the agency's efforts to engage them in service. The case was transferred for ongoing service under the code of domestic violence when clearly issues of addiction, neglect and parenting skills were also of paramount concern. In its internal review, the agency acknowledged that the case transfer process was fraught with problems including miscommunication, incomplete assessment and serious delays.

The PDRC found that the decisions to close the case after each of the first eight investigations appear to have been based primarily on parental denials of the allegations or a minimized view of the issues. There is a critical need for agencies to establish a concentrated specialty on infants with high-risk features, with a focus on household environments. This includes parenting skills, sleeping arrangements, and monitoring requirements of all infant physical milestones and emotional needs especially when parental addiction issues are involved. It is not good practice to close cases when there remains suspicion of poor parenting just because the family is hard to engage and may be avoiding contact. The use of more intrusive measures in this case needed to be considered; the PDRC questioned the medical and child protection decision making processes that allowed the discharge of a child dependent on morphine to a drug addicted mother, on a voluntary basis. This case was referred for a PDRC medical review; the report is pending.

Preventable Deaths

The Arizona Child Death Review program developed a definition now in use by many child death review teams. It states that "***a child's death is preventable if the community or an individual could reasonably have done something that would have changed the circumstances that led to the death.***" We often think that injury events are random "accidents." However, most injuries to children are predictable, understandable and therefore preventable. (From: The National Center for Child Death Review - Michigan)

The vast majority of children's deaths reviewed by the PDRC resulting from acts of omission or commission were potentially preventable with increased or different intervention, education or monitoring. This means that by identifying patterns and themes, and making meaningful recommendations we should be able to prevent future deaths in similar circumstances. Many of the 37 deaths reviewed this year might have been prevented by:

- Provision of a safer sleep environment: (15)
- Provision of coordinated mental health resources and facilities directed to youth identified as high risk for suicide: (6)
- More appropriate or adequate supervision of the child: (5)
- Intervening before a violent act was directed at the child by a caregiver : (5)
- Closer attention and response to the child's medical needs: (1)

2007 PDRC Reviews of Cases with Children's Aid Involvement

76 deaths reported to the PDRC by a CAS in 2007 underwent a screening review and it was determined that full committee reviews and reports were unnecessary in 36 of them. These 36 cases will not receive detailed reviews because it was apparent that a CAS or medical intervention could not have prevented the death. Examples would include cases where the child was medically fragile and the death was not sudden or unexpected or cases where the CAS only became involved as a result of the incident that led to the child's death. 40 of the 76 deaths from 2007 will be sent to the committee for future full reviews and reports, potentially with recommendations.

In 2007, the PDRC conducted in-depth reviews of 37 deaths of children whose families had involvement with a Children's Aid Society (CAS) within the 12 months preceding the death. One incident, a homicide, involved the deaths of 3 children; therefore 35 reports with recommendations were issued.

Of the 37 deaths, 15 of the children were female and 22 were male. The age of the children ranged from 2 weeks to 17 years. The majority (57%) of deaths involved children under 5 years of age (n = 21) and 15 of those 21 children were under 1 year of age (71%). 13 of the remaining 16 children were between the ages of 12 and 17.

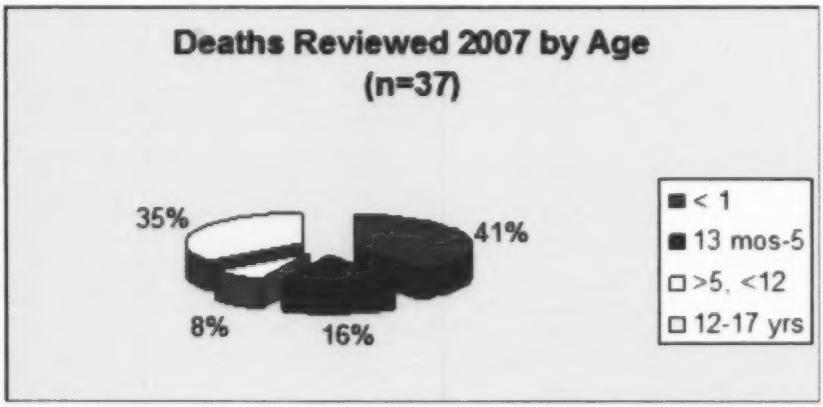
Cases were reviewed from deaths occurring in the following years:

2006 - 27 cases (29 children)
2005 - 6 cases
2004 - 1 case
2003 - 1 case

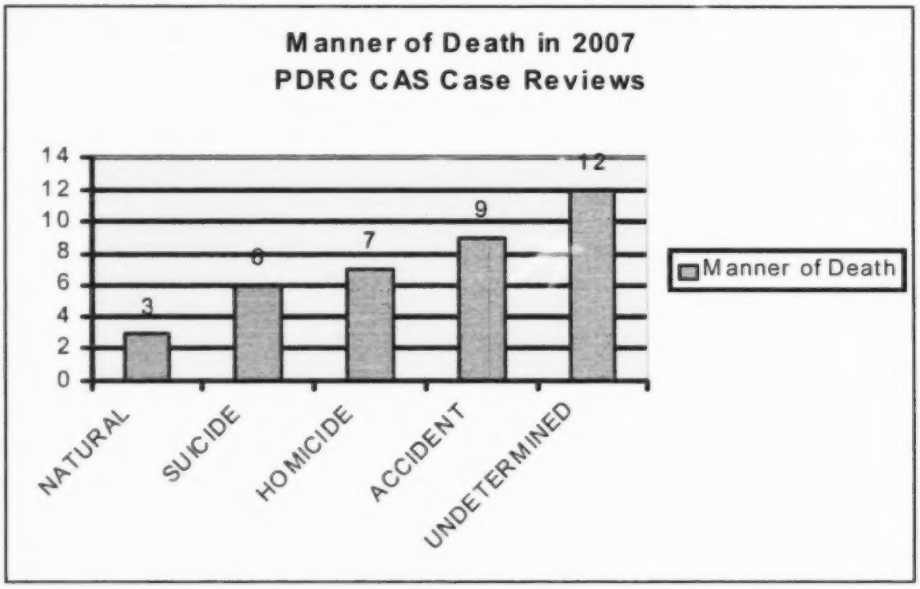
CAS Involvement:

- 25 cases were open to a CAS at the time of the death (22 Protection + 3 Crown Ward)
- Types of protection files: 7 Intake; 15 Ongoing (4 involved Family Court applications)
- 10 cases had been closed within the 12 months preceding the death
- 4 of the 37 children were in the care of a CAS - 3 of 4 children were Crown Wards

In 3 of the cases, a young child died in the care of an alternate caregiver (a relative or babysitter), demonstrating a need for parents to ensure that others with whom they entrust the care of their children can adequately supervise them and can provide safe sleeping arrangements.



2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death



The following sections contain real case examples from 2007 PDRC reviews which illustrate each of the five classifications of manner of death (see page 13 for full definitions). As in all case examples in this report, identifying details have been altered to protect the privacy of the children and others.

Death by what means: **UNDETERMINED**

When a full investigation, including autopsy, does not produce evidence for, or result in, a specific finding regarding the manner of death, the death is classified as Undetermined. Many of the sudden, unexpected deaths of infants (SUD), where no anatomic or toxicologic cause of death are found, are classified this way.

In 2007, 12/37 deaths reviewed by the PDRC were classified as Undetermined. 11 of these 12 deaths involved infants less than 12 months of age who died in unsafe sleeping environments. One "undetermined" death was that of a youth whose death did not meet the test for suicide - which must be "within a high degree of probability".

A six-week-old female child was being breast-fed by her mother in the parents' bed; the father was also present. The mother apparently fell asleep while breast-feeding and woke up in the morning to find the child vital signs absent. The child was subsequently transferred to the emergency department where resuscitation attempts were unsuccessful. Autopsy results revealed no obvious anatomic cause of death. There was no evidence to suggest foul play; post-mortem radiology showed no recent or old fractures and toxicology test results were negative. The death was classified as:

Cause: SUD
(in the presence of co-sleeping with both parents in an unsafe sleeping environment - adult bed)

Manner: Undetermined

2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death

Death by what means: **NATURAL**

Some children are so medically fragile that their deaths are expected and occur under medical care; these cases may not warrant a coroner's investigation. If a CAS is involved with the family, the agency is advised that this is not a coroner's case and no further review is expected by the PDRC.

Due to the nature of a child's illness and/or death, which is often predictable and not directly preventable by a CAS or medical intervention, few of these deaths receive full reviews by the PDRC, which include a complete report with recommendations.

On occasion, there are concerns raised about the child's care prior to death and the PDRC will review both the CAS and medical care provided to the child. In 2007 we reviewed 3 deaths from natural causes. One from complications of cystic fibrosis, one from SIDS and one from myocarditis.

A 13-year-old boy, with a life long history of cystic fibrosis, was admitted to hospital in serious condition; comfort measures were provided and he died shortly afterwards. He had not been overly physically active; he was underweight and the last time he had seen a doctor was 3 years previously. He was in Grade 8 at school with sporadic attendance. A CAS file had been opened on several occasions; however, the case had closed prior to this child's death.

In view of the possibility of a quality of care issue, the coroner notified the police; no charges were laid. The Report of Post Mortem Examination listed 9 major findings and that the cause of death was complications of cystic fibrosis; the manner of death was classified as natural.

2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death

Death by what means: **SUICIDE**

A classification of Suicide means the death is a result of an intentional act by a person knowing the probable consequence of what he or she is about to do, that is, the commission of an act that will result in his or her own death.

The suicide deaths of 6 youth between the ages of 12 and 15 were reviewed in 2007 by the PDRC. The cause of death in all 6 deaths was hanging. All of these young people were female and 2 of the 6 girls were identified as First Nations Youth. Several themes are noted in the troubled lives and unfortunate deaths of these youth.

Factor	Number
Previous suicide attempt/ideation - known	6
Previous mental health concerns - known	6
Previous or current treatment	6
Parents unable to meet child's needs - known	5
Identified school/social issues	5
Previous abuse/neglect	4
History of parent/child conflict	4
Previous admission to foster care	3
Prescribed medication	3
Child grieving death of family member	3
History of substance abuse	2

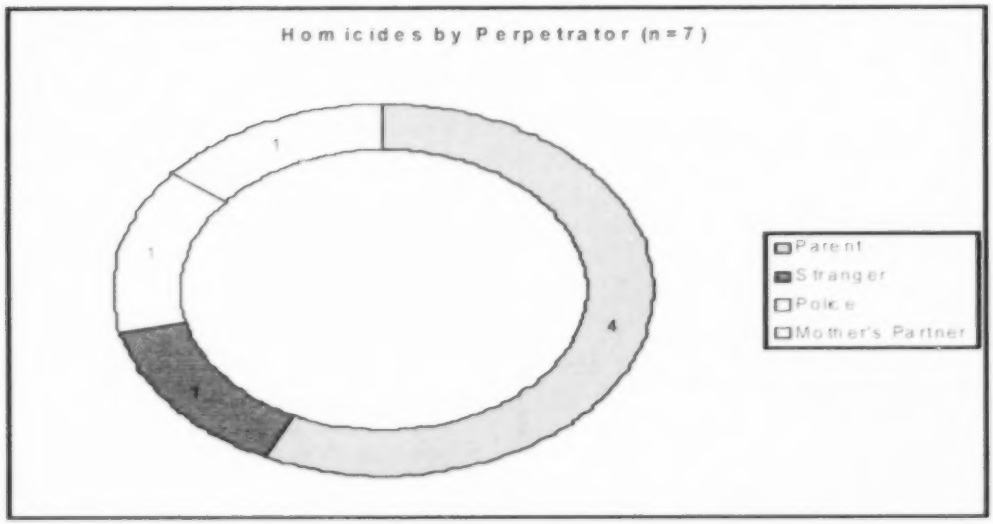
A 14-year-old girl with a history of suicidal behaviour, including two previous attempts, was found dead hanging in her bedroom, by her mother. On the weekend leading up to her death she had been out with a friend. She had recently experienced the loss of a close cousin, was having academic difficulties at school and was being teased by some peers. This youth had been in and out of foster care for several years due to parent-adolescent conflict and concerns about parental substance abuse and mental health issues. She was returned to her parents' care six months prior to her death, had been referred for counselling and seemed to be doing well; the CAS file had closed four months earlier.

2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death

Death by what means: **HOMICIDE**

7 children's deaths reviewed in 2007 were the result of Homicide, meaning the non-accidental action of one person against another leading to death. Caregivers were responsible for the deaths of 5 children: 3 children (with their mother) were killed by their father; one child was killed by the mother's partner; one child was killed by one or both caregivers (mother and her partner); both were criminally charged. One child was shot by police during an altercation and the other was killed (with his mother) by an unrelated person.

Cause of death	Number
Gunshot	4
Blunt force trauma	2
Stabbing	1



An 18-month-old child was brought to hospital emergency by his mother and her common-law partner. The child appeared weak, was unable to walk and it was determined he had experienced trauma to his leg and arms; he subsequently died. Both adults were charged with failing to provide the necessities of life and criminal negligence causing death; two surviving children were apprehended by the CAS and placed in foster care.

2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death

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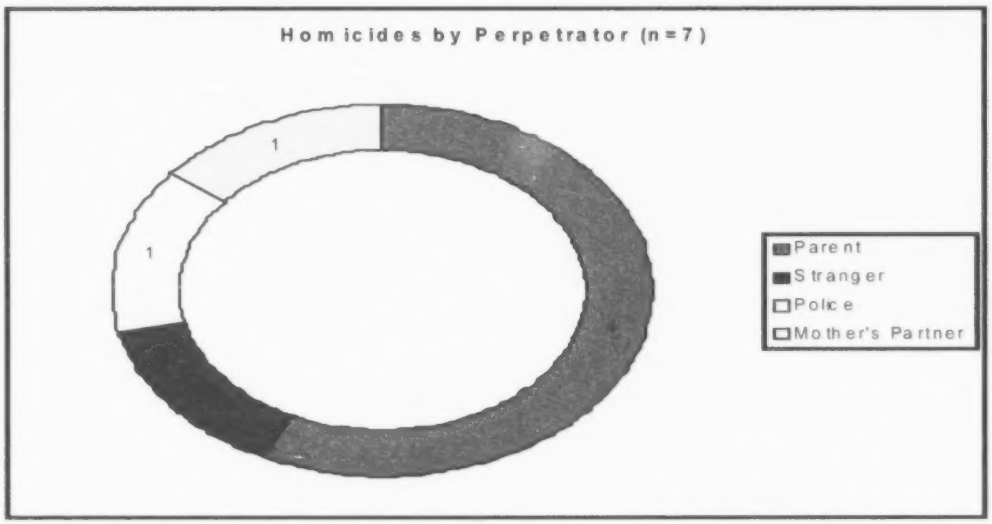

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2007 PDRC Reviews of Cases with CAS Involvement – Manner of Death

Death by what means: **ACCIDENT**

9/37 cases reviewed by the PDRC in 2007 were classified as "Accident", meaning as a result of an incident that happened without foresight or expectation. Most "accidental" deaths are preventable. Adequate supervision of young children and increased awareness through education can help reduce or eliminate the majority of these deaths in the future. The 9 accidental deaths reviewed by the PDRC were due to:

- ≈ fall from height – 1
- ≈ smoke inhalation in a fire – 1
- ≈ positional/compressional asphyxia – 2
- ≈ motor vehicle accidents - 2
- ≈ drowning – 3 (one drowning occurred in a bathtub; 2 occurred in lakes – all 3 children were not being supervised at the time by an adult)

A mother was bathing her infant and toddler together in the bathtub. She had the children in plastic bathtub seats, which were adhered to the floor of the tub with suction cups. The water was at, or below, their waist levels. At some point she went into the bedroom next door to retrieve their pyjamas, which she had forgotten. On her return minutes later she found her 9-month-old face down in the water, out of the bath seat. She pulled him out and called 911 and attempted CPR; he died enroute to hospital.

U.S. Consumer Product Safety Commission (CPSC) Consumer Product Safety Alert (2007) reports that childhood drowning deaths also occur in other containers that may contain liquids, including coolers, sinks, fish tanks and landscape ponds. Highlighting the provision of constant supervision, CPSC offers these safety tips to help prevent childhood drowning deaths in and around the home:

- NEVER leave a baby alone in a bathtub even for a second. Always keep baby in arm's reach.
- NEVER leave young children alone or with young siblings in a bathtub even if you are using a bath seat or ring. Children can drown quickly and silently.
- Keep the toilet lid down, and keep young children out of the bathroom when unsupervised. Consider placing a latch on the bathroom door out of reach of young children.
- Be sure all containers that contain liquids are emptied immediately after use. Do not leave empty containers in yards or around the house where they may accumulate water and attract young children.
- Always secure the safety cover on your spa or hot tub.
- Learn CPR (cardiopulmonary resuscitation) - it can be a lifesaver.

Internal Child Death Reviews by Children's Aid Societies

The 2006 Joint Directive includes the rationale, a template and guidelines for completing Society internal reviews when a child dies while receiving service from a children's aid society. Many agencies were already completing internal CAS reviews on child deaths prior to 2006; others do so now at the request of the Paediatric Death Review Committee. The goal of all reviews of children's deaths should be to learn from the analysis of the circumstances and services surrounding the death in order to prevent future deaths.

For some time, hospitals in Ontario have conducted internal quality of care reviews or peer reviews when serious incidents occur, even when the incident involves medical error.

"Quality assurance reviews are an indispensable and time-honoured means of examining medical errors with the goal of preventing further mishaps and improving health care services". (From: Quality Assurance Reviews - An Update: *Quality of Care Information Protection Act, 2004*, by Kristin L. Taylor)

These reviews are generally conducted by a quality of care committee with functions to "carry on activities for the purpose of studying, assessing or evaluating the provision of health care with a view to improving or maintaining the quality of the health care or the level of skill, knowledge, and competence of the persons who provide the health care". (www.oca.com)

The learning derived from these types of reviews can assist providers of service to critically analyse and make adjustments to practice and policies in order to reduce or prevent future deaths.

Over the past two years, the Paediatric Death Review Committee has attempted to clarify the original guidelines established for internal reviews. We continue to receive questions about the criteria used to request internal reviews by children's aid societies. The Joint Directive requires a full review of the case when a child dies under "questionable" circumstances. Questionable cases were defined as: all cases classified as undetermined, all cases where a child was in care, all cases where circumstances surrounding the death relate in any way to the reasons for service, and all cases where there are grounds to suspect the death was linked to an act of omission or commission on the part of the caregiver.

The Joint Directive requires that an external reviewer with appropriate clinical or child welfare expertise form part of the review team. The goal is for agencies to develop internal capacity to conduct reviews. Some agencies hire external consultants to complete or lead the review, however other organizations steer the process with an external participant on the review team.

In 2007, internal reviews were requested in 37/90 cases reported to the PDRC by a CAS. The PDRC, upon reviewing the CAS Child Fatality Case Summary Report and the Coroner's Investigation Statement, considers the following criteria (not an exhaustive list) when requesting a Children's Aid Society to conduct and forward to the PDRC an internal review:

- **CAS involvement within 12 months**
- **Sudden, unexpected deaths, including most Accidents, Homicides, Suicides and Undetermined deaths**
- **Some Natural deaths (i.e. SIDS)**
- **Potentially preventable with intervention possible**
- **CAS file was opened for related reasons**

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews

It is acknowledged that some of the recommendations from individual reports of the PDRC have already been implemented and have resulted in revisions to agency practices and policies. Changes are evident in the recently revised provincial child protection standards and legislation. The point of any child death review is to identify and learn from any individual, agency, or system interventions that impact in a negative or positive manner the way children are protected from harm in order to prevent future deaths in similar circumstances.

Agencies that complete Internal Child Death Reviews often arrive at findings and recommendations for improving internal practice and policy; generally the PDRC endorses these recommendations and may add its own. The following section provides a summary of both practice strengths and limitations observed by the committee in its review of 37 child death cases in 2007. The number of times a theme or recommendation was observed is included in parenthesis. Sample cases that demonstrate some of these identified themes are also presented.

THEMES - Noted Strengths in Practice

- **Many thorough, detailed Internal Child Death Reviews were completed**
- **There was often evidence of critical analysis of case management and compliance with provincial standards; including practical recommendations to enhance agency practice and policies**
- **In many cases, there was evidence of excellent service coordination**
- **A high quality of service was often provided to families and children**
- **Follow through and progress reports provided on internal and PDRC recommendations have been provided**
- **Some agencies have comprehensive high risk infant protocols and practices**

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews

THEMES – Noted Limitations in Practice

	FREQUENCY
Lack of contact with professional collaterals to verify information provided by caregiver	15
Little collaboration and few case conferences with other involved service providers	14
Family background/child welfare history was not considered in the overall assessment and intervention with the family	14
Serious documentation issues impacting on case management, decision making and reviewability of the file	8
Apparent patterns of neglect not assessed as such; no progress on service plan goals	8
Children not seen/interviewed privately on a regular basis	7
Fathers/ male caregivers not engaged in service	5
Record checks not completed	5
No drug/alcohol screens/assessments for parents with history of substance abuse	5
Parents' needs or worker's relationship with parent took priority over child's needs	5
Appropriate staffing coverage not in place during vacation, staff shortages etc., impacting service to high risk families	4
Risk underrated; high risk case closed prior to infant's death	4
Workers not viewing child's sleep environment	4
Difficulty locating/engaging parent leading to file closure	3
Supervisory notes lacking	3

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews

THEMES—Recommendations to Children's Aid Societies

	FREQUENCY
Staff should educate parents about safe sleeping practices, including staff to view sleep environments for infants on a regular basis	12
Need for protocol development – police, hospitals, mental health services, high risk infants	8
Consideration of parenting capacity assessments for parents in cases with evidence of long standing parenting capacity concerns continue	8
Further review needed by agency - internal review/verification conference	8
Need for more case conferences with all service providers	8
More intrusive approach recommended	7
Need to review cases with multiple file openings, multiple transfers between agencies, multiple reports not opened for investigation	6
Develop policies regarding collateral contacts	6
Follow-up with surviving children	6
Reduce # of workers on a file/ensure staffing coverage for high risk cases	6
Need for discharge planning conferences with hospitals	4
Development of high risk infant policy	4
Staff should remind parents about appropriate levels of supervision	4
Including non custodial parent in investigation, assessment and intervention	3
Drug testing for parents with substance abuse issues	3
Staff support for meeting compliances and standards, paperwork	3
Consideration and assessment of possible Fetal Alcohol Syndrome	2
Consideration of prenatal assessment on high risk mothers	2

Recommendations regarding TRAINING

Suggestions for further training on case related topics are often made by the PDRC.

The highest number of recommendations included enhanced training on **high-risk infants and/or safe sleeping practices (14) and children's mental health (5).**

Other areas were: SIDS, Domestic Violence, Substance Abuse, Engaging Clients, Documentation and Recording practices, and Fetal Alcohol Syndrome.

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews

Recommendations directed to others

The majority of PDRC recommendations are directed to the responsible Children's Aid Society, however on occasion other parts of the system may be in a better position to implement the changes required. For example:

Ontario Association of Children's Aid Societies (OACAS)

- Add SIDS and unsafe sleep information to the High Risk Infant curriculum
- Development of a standardized home safety checklist tool for child welfare workers (with input of PDRC)
- Include substance abuse risks in High Risk Infant training

Ministry of Children and Youth Services

- To resource and support initiatives for youth at risk of mental health problems, addictions and suicide
- To monitor, support and resource the agency to implement recommended changes to quality of case work
- To review funding support to enhance service and partnership between the local CAS and northern remote service providers
- To request group homes to conduct reviews whenever a child in their care dies
- To review group home policies regarding accompanying youth in care to an emergency department at a hospital
- The MCYS is to work with CAS's and other youth service providers to examine more effective ways of supporting and stabilizing high risk, self harming and poorly adjusted youth
- To conduct a further review of a case
- To ensure joint protocols are in place between CAS's and other care providers (i.e. hospitals, mental health services, group homes)
- To communicate to CAS's the role the Coroner's Office has in sharing information about paediatric deaths
- The MCYS is to monitor agency approach to staffing shortages

Coroner's Office

- To provide input based on death reviews into the OACAS curriculum for High Risk Infant training
- To consider research on the risks associated with premature sleeping in infant car seats
- Refer cases for a PDRC Medical Review - upon completion of a CAS review, it was recommended that 3 cases be forwarded for a medical review based on concerns identified about the medical care

The following 2 case examples illustrate several **themes noted in practice** and in **recommendations.**

There are frequently themes noted in the stories or histories of the children whose deaths are reviewed at the PDRC as is apparent throughout this report. These two examples demonstrate the repeated patterns that are observed by those who work in child welfare and on child death review teams.

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews
Case Examples

Example #1 – a 4 month-old baby, who had **been sleeping between both of her parents**, was found not breathing. The parents admitted to smoking marijuana and drinking alcohol throughout the previous evening. The father had recently been released from jail on drug charges; both parents had long recognized problems with substance abuse and the baby had tested positive at birth for high levels of marijuana and cocaine due to prenatal exposure. The local CAS had investigated these concerns upon the birth of the child with these results:

- The mother admitted to long-term drug use, including marijuana and cocaine.
- The father was in jail for drug related charges.
- He had been physically abusive to the mother in the past.
- She said she had no plans to reconcile with him and did not want him involved with her or the baby. Therefore, the worker **did not contact the father** and advised the mother that the father was not to have contact with the baby without CAS approval.
- The mother had no provisions for the baby and was relying on family members for support. She agreed to reside with a relative who was to notify the agency if she left.
- The mother completed one drug test by her doctor, which confirmed a high use of drugs throughout the last 6 months of the pregnancy. She spoke to an addiction counsellor and agreed to attend for further assessment and treatment.
- The case **was closed within six weeks** under the following conditions: the mother was to stay with a family member for support, attend a substance abuse treatment program, refrain from drug use and not contact the father.
- **No case conference was held, verification with professional collaterals did not occur, no further drug testing was required and no risk assessment was completed.**
- **No parenting support or services to monitor the baby were confirmed.** After the baby died, it became evident that the mother and father were in contact after his release from jail and both continued to use drugs and alcohol. The mother had only attended one appointment with an addiction counsellor, but did not follow through with treatment. On the night before the child's death, she was not staying with the relative and both parents were using substances. The relative had not reported any concerns to the CAS and the addiction counsellor did not report the mother's lack of follow through with treatment and was unaware that the file had closed.

The PDRC believed that this child's death was potentially preventable **if more monitoring and intervention** had occurred by the Society and the community service providers. Therefore, it was recommended:

1. That the CAS should ensure that intake and ongoing protection staff and supervisors have **regular and appropriate training on substance abuse by parents and the identification of risk factors for high risk infants**.

2. That the **Ministry of Children and Youth Services Regional Office should conduct a review** of this case to include community service partners and the CAS to identify the issues and solutions to inform future collaborative working relationships in similar cases.

3. That the **CAS should review and/or develop policies and procedures on drug testing parents with a history of substance abuse as part of ongoing risk assessment** and on monitoring families of infants exposed to substances prior to birth.

4. That the CAS should report to the Ministry on the progress of implementing their recommendations.

Enhancing Child Welfare Practice Through Lessons Learned from Child Death Reviews Case Examples

It has become common for the PDRC to recommend that CAS workers view the sleeping arrangements of infants and young children frequently as a regular part of their child protection investigation, assessment and ongoing monitoring of families. This photo was taken one day after a home visit when an 18-month-old infant died in an unsafe sleeping environment. Presumably the worker had visited the home, but did not see the room in which the child slept.

Example #2:

Two cases involving the unrelated deaths of 2 adolescents involved with different agencies and unknown to each other help to demonstrate several themes noted by the PDRC, particularly with older children.

A 14 year-old girl committed suicide and a 16 year old girl died in a motor vehicle accident within 2 weeks of each other. Both young women had troubled lives and acrimonious relationships with family members and peers, at times demonstrating difficult to manage behaviour, self-harming tendencies and having involvement with mental health professionals.

Shortly prior to her death, each girl was discharged from hospital; the responsible children's aid society was not notified or included in discharge plans. In both cases, the agencies were commended for services provided to these vulnerable teenagers.

The common concerns however were of **communication and case conferencing** with hospital staff. In both cases, the PDRC recommended that the agency, with support from the Ministry, ensure that **protocols are in place with hospitals related to collaboration and information sharing on discharge planning** for youth who are crown wards and/or experiencing mental health issues.

KEY MESSAGES

- Natural causes are the most common reason that children die
- Many child deaths are preventable; child death reviews are about understanding and learning from the past to prevent similar events in the future
- We (child welfare and medical systems) learn more from examining our mistakes than our successes
- By identifying themes and making recommendations for best practice, we can make changes without blaming
- Public education is a key component in prevention
- The safest sleeping environment for an infant is on its back in an approved crib with a firm mattress
- Involvement with a CAS is not a factor in the vast majority of child deaths in Ontario; for those children who died while receiving CAS services, most deaths could not have been foreseen or prevented by a CAS
- The most vulnerable ages for paediatric deaths is under 12 months, and between the ages of 12 and 18 years

Future Directions

Since the last report of the PDRC in 2007 the following initiatives which were identified for consideration, have taken place:

- An increase in the number of child welfare experts on the Paediatric Death Review Committee to assist in review of CAS cases (2 new CAS Consultants have been recruited to the PDRC for the 2007-2008 reporting periods)
- The development, revision, and delivery of training on Child Death Investigations, Reporting and Reviewing for CAS workers (some agencies have participated in this training–the goal is to offer training to CASs around the province)

The following are "works in progress" on an ongoing basis:

- The continued work with the Ministry of Children and Youth Services and the Child Welfare Secretariat to ensure ongoing support and resourcing of the Child Death Review Process and continued sharing of information on child deaths and PDRC recommendations
- The creation and propagation of a "blame free" culture to encourage an environment which seeks to openly identify and reduce errors and omission
- The enhancement of public and professional awareness of the risks to infants of bed-sharing and unsafe sleeping environments
- Liaising with other provincial and international Child Death Review Committees to share resources and ideas
- The continued provision of an expert, objective, and transparent process to review deaths of children in Ontario which has a goal to enhance learning, recommend systemic changes as needed, and to reduce and prevent future child fatalities

The following points highlight areas for consideration to improve the child death review process in the Province of Ontario:

- The analysis of "Lessons Learned" from individual society internal child death reviews and sharing these lessons with the broader child welfare community
- Review the data collected searching areas of public health interest. ie drowning, teen suicide, lack of system integration, need for case management model involving all collaterals in CAS cases and consider for future research study
- Identify where systemic issues in child safety and care arise, and review them with inquests, where appropriate
- Revise and improve tools for investigating deaths in children
- Review and consider the Public Health Agency of Canada: Proposed Guidelines for Coroner and Medical Examiner Investigation of Unexpected and/or Unexplained Child Deaths 2008
- Conduct further research into such areas as: teen suicides in Northwestern Ontario, bed-sharing and risks to children
- Consideration of publication of the above

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Reference Materials

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www.mpss.jus.gov.on.ca/english/pub_safety/office_coroner/about_coroner.html

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www.aap.org

OACAS (Ontario Association of Children's Aid Societies)
www.oacas.org

Canadian Foundation for the Study of Infant Deaths
www.sidscanada.org

Canadian Pediatric Society
www.cps.ca

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www.thename.org

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National Center for Child Death Review
www.childdeathreview.org

National SIDS and Infant Death Program Support Center
www.sidsalliance.org

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